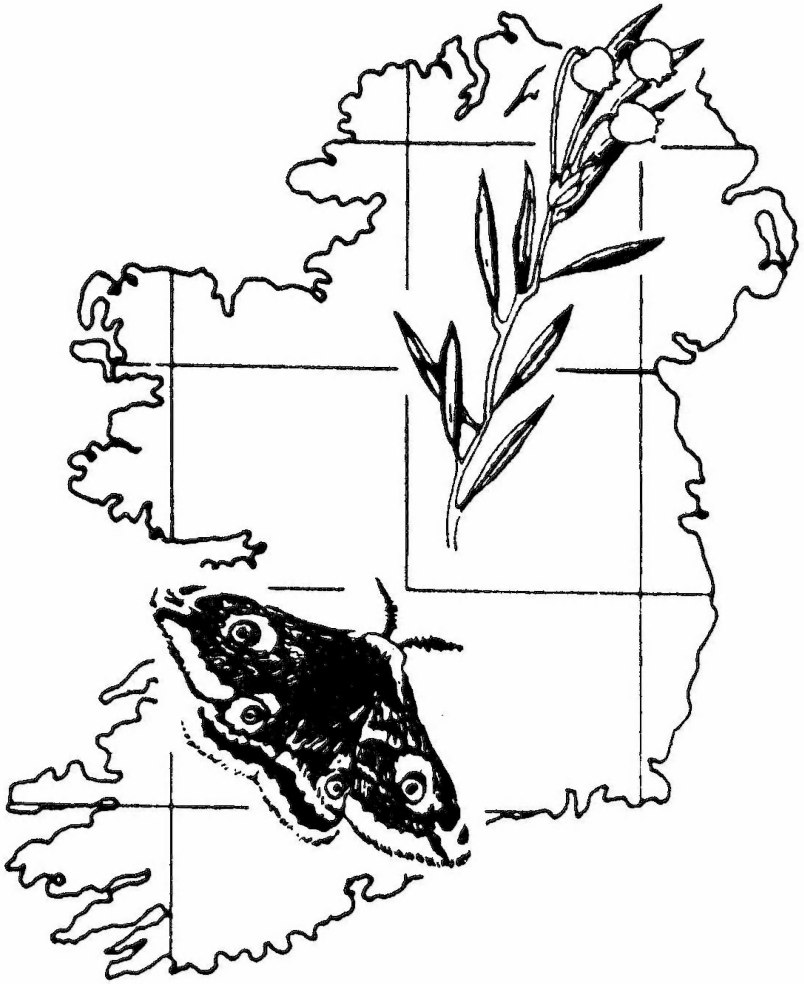
IRISH BIOGEOGRAPHICAL SOCIETY



Bulletin No. 36

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BULLETIN OF THE IRISH BIOGEOGRAPHICAL SOCIETY

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EDITORIAL

This year has been a very successful year for the Society with the publication of three books in the *Macro Series*. *Second Supplement to A Bibliography of Irish Entomology* appeared in June. It is in a similar format to the *First Supplement* and covers the years 2001-2011. In recent years, there has been greater governmental and international funding for *inter alia* Irish environmental and conservation studies. As a result, although covering ten years, the bibliographic content of the *Second Supplement* is nearly the same as the *First Supplement* which dealt with twenty years. As the *Second Supplement* is the final volume in this series, it contains an author index to *A Bibliography of Irish Entomology* and the two supplements. In July, *An Annotated Checklist of the Irish Hemiptera and Small Orders* was published. It completes the basic check listing of the Irish insect fauna. The *Checklist* is dedicated to the memory of Dr Courtenay Neville Smithers (1925-2011) in recognition of his important research work on the Irish Psocoptera, a group which includes the booklice and barklice. Both volumes are available from the Society at €20 each including postage.

The chironomids are a very important group of non-biting midges and in October, in association with the National Museum of Ireland, the second part of *A World Catalogue of Chironomidae (Diptera)* was published. Dealing with the Orthocladiinae, it was necessary to produce part two in two separate volumes (Sections A and B). Altogether, it contains almost a thousand pages. Further details concerning the three books are given elsewhere in this *Bulletin*.

Happily, the *Bulletin* continues to thrive and this issue contains an interesting range of papers. The support of our sponsors is an essential element in the journal's success and on behalf of the Society, I would like to thank them for their continuing kindness in these difficult financial times. We are also very grateful to our contributors and referees. Finally, I would like to thank the National Museum of Ireland (particularly Raghnall Ó Floinn, Head of Collections and Nigel Monaghan, Keeper of Natural History) for facilitating the work of the Society.

J. P. O'Connor, Editor, 31 October 2012

INSTRUCTIONS TO AUTHORS

1. Manuscripts should follow the format of articles in this *Bulletin*. The titles of journals should be given in full in the references.

2. Manuscripts may be sent as typed copy on A4 paper, using double-spacing and 2.5cm (one inch) margins with the text and any figures also on an accompanying compact disc to the Editor, Dr J. P. O'Connor, emeritus entomologist, National Museum of Ireland, Kildare Street, Dublin 2, Ireland. Alternatively, mss may be submitted electronically *via* our Treasurerer Mr John Walsh at <ampersandwalsh@gmail.com>.

3. Word is preferred and Times New Roman 13pt should be used.

4. Figures and tables should be submitted in a size suitable for reduction to A5 without loss of detail. It is important that the text should remain legible after reduction. JPEGS are preferred for figures.

5. Records: please ensure that, when possible, the following information is incorporated in each record included in a manuscript:-
(a) latin name of organism.
(b) statement of reference work used as the source of nomenclature employed in the text. The describer's name should be also given when a zoological species is first mentioned in the text.
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(e) altitude data should be included where relevant.

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FIRST RECORD FOR IRELAND OF *METRIOCNEMUS* (*INERMIPUPA*) *CARMENCITABERTARUM* LANGTON AND COBO, 1997 (DIPTERA: CHIRONOMIDAE, ORTHOCLADIINAE)

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Abstract

Metriocnemus (*Inermipupa*) *carmencitabertarum* Langton and Cobo, 1997 (Diptera: Chironomidae, Orthocladiinae) is recorded for the first time from Ireland.

Key words: *Metriocnemus*, subgenus *Inermipupa*, new record, Ireland.

Introduction

The immature stages of *Metriocnemus* species are found in a wide range of moist, semi-terrestrial or aquatic biotopes. In an extensive review of the larval ecology of *Metriocnemus* spp., Cranston and Judd (1987) documented disparate ecological occurrences in damp/wet mosses, moist leaf litter, plant-held water accumulations, hollow tree rot holes, in madicolous habitats along the margins of streams, ditches and lakes and, in the case of one species, in haline temporary splash zone pools on the Pacific coast of Oregon, U.S.A.

Three subgenera are currently recognised in *Metriocnemus* Wulp, 1874: *Crymaleomyia* Ashe and O'Connor, 2000, *Inermipupa* Langton and Cobo, 1997 and *Metriocnemus* sensu stricto. Sixty seven species of *Metriocnemus* sensu lato are known, 65 of which belong to *Metriocnemus* sensu stricto and are distributed through all zoogeographic regions except Antarctica and Oceania (Ashe and O'Connor, 2012). The subgenera *Crymaleomyia* (known in the Oriental Region only) and *Inermipupa* (known in the Palaearctic Region only) are monotypic. Ashe and O'Connor (*op. cit.)* recognise 39 valid *Metriocnemus* sensu lato species in

the Palaearctic, including 23 in Europe. In the geophysical area encompasing the British Isles, Chandler (1998) listed 11 species, including *M. beringiensis* (Cranston and Oliver, 1988) known from Ireland only (Murray, 1996). Murray (2005) and Chandler *et al.* (2008) cite 9 species from Ireland. Murray (2010) added a record of *Metriocnemus* (*Metriocnemus*) *inopinatus* Strenzke, also not known from Britain, increasing to ten the total of *Metriocnemus* sensu stricto species on the Irish faunal list.

The present paper augments the listing of *Metriocnemus* sensu lato species in Ireland by documenting the first record of the monotypic subgenus *Metriocnemus* (*Inermipupa*) Langton and Cobo, 1997.

Methods

Pupal exuviae were slide mounted in Euparal. Some slide preparations and additional pupal exuviae and adult male and female imagines preserved in 75% ethyl alcohol are deposited in The National Museum of Ireland.

Metriocnemus (*Inermipupa*) *carmencitabertarum* Langton and Cobo, 1997

Pupal exuviae, adult male and female imagines were first collected on 27 March 2012 while additional pupal exuviae and larvae were collected on 9 April 2012 in a discarded milk churn used to save rainwater from the roof of a small garden greenhouse at Brook Lodge, Riverstown, Kilmessan, Co. Meath (58.583°N 6.652W, IGR: N892595, UTM PV2). The collection site is located in the catchment of the River Skane, a tributary of the River Boyne (Hydrometric Area 7) in the Eastern Region River Basin District of Ireland. On both collection occasions, *M.* (*I.*) *carmencitabertarum* was the only chironomid species observed.

Palaearctic distribution

Pupal exuviae of this species were originally recognised from specimens collected by Fernando Cobo at Serra da Estrela, Portugal in July 1989 and included by Langton (1991) as "Orthocladiinae gen? sp? Pe 3" in his key to pupal exuviae of the West Palaearctic

Chironomidae. Subsequently larvae collected, in November 1994, from small rain-filled granitic rock pools in Galicia, north-western Spain and reared to adult male and female stages yielded similar exuviae allowing Langton and Cobo (1997) to recognise and describe all life history stages of the new species and erect the new subgenus *Inermipupa* in *Metriocnemus*. At the time of description, the species was only known from the Iberian Peninsula.

The first record outside the Iberian Peninsula was given by Murray *et al.* (2004) who reported *M.* (*I.*) *carmencitabertarum* in the Azores Archipelago in a collection of pupal exuviae from an artificial communal trough on Rua Jose Agostinho, Angra do Heroísmo, Terceira. The species was more recently found in 2010 in Bristol, England where pupal exuviae were taken by R. S. Wilson from rainwater accumulation in a garden wheel barrow (P. Langton, *pers. comm.*). An additional and as yet unpublished record, from The Netherlands is given by the account of a record from a bucket in Appingedam, Gronigen, during summer 2011 cited in the on-line *Dutch Stichting Bargerveen* website (<www.natuurbericht.nl>). The Dutch record has been verified by Martin Spies, Zoologische Staatssammlungen Munich (*pers. comm.*).

The current listing in Fauna Europaea (Sæther and Spies, 2011) indicates additional distribution data of the species from Estonia and Poland. However, these records are now uncertain - at least no published record exists for Poland (Dr Wojciech Gilka, *pers. comm.*). Langton and Viser (2003) cite 47 species from Svalbard (Spitzbergen) including *M.* (*I.*) *carmencitabertarum* but this record is also uncertain and has not been verified. The species is not cited in recent checklists of the freshwater fauna of Svalbard (Coulson, 2007 and 2008).

Comments - an opportunistic species?

The Iberian record from rain-filled granitic depressions in Galicia (Langton and Cobo, 1987), the Azorean record from an artificial trough in Angra do Heroísmo (Murray *et al.,* 2004) and the records from a wheel barrow in Bristol in 2010 and from a "rain-filled bucket" in Gronigen in July 2011, together with the new record from a rain-filled churn in Ireland suggest that *M.* (*I.*) *carmencitabertarum* is an opportunistic and perhaps stenotopic species, specialised to exploit freshly created, accessible and possibly temporary habitats.

Acknowledgements

I wish to thank Drs Patrick Ashe and J. P. O'Connor for generously providing pre-publication information on worldwide *Metriocnemus* species numbers and distribution from the forthcoming Part 2 of the World Catalogue of Chironomidae.

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FOUR CHIRONOMIDAE (DIPTERA) NEW TO IRELAND IN THE SUBFAMILIES ORTHOCLADIINAE AND CHIRONOMINAE AND A NEW SITE RECORD FOR *PAROCHLUS KIEFFERI* (GARRETT, 1925) (PODONOMINAE)

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Abstract

Examination of pupal exuviae collected by field research staff of the Environmental Protection Agency from lakes in Counties Clare, Donegal, Limerick and Wicklow, has yielded four new records of Chironomidae for the Irish faunal list. Three belong to the subfamily Orthocladiinae and one to the subfamily Chironominae. A new distribution record is given for the podonomine species *Parochlus kiefferi* (Garrett, 1925).

Keywords: Chironomidae, pupal exuviae, new records, Ireland.

Introduction

Environmental biomonitoring based on faunal community taxonomic richness and composition is considered a most effective tool for detecting alterations in aquatic systems (Cairns and Pratt, 1993). Because of their predominant position in the macroinvertebrate fauna of lakes, analyses of chironomid community assemblages makes the taxon a particularly useful bioindicator group for lake characterisation and monitoring of water quality. However, until recent times chironomids have not been used intensively in monitoring programmes due to time-consuming procedures necessary to identify larvae or adults. Following development from the larva to pupal stage, the mature pupa of all aquatic Chironomidae must reach the water surface so that the adult insect may emerge. On eclosion, the adult midge takes to the wing while the empty pupal exuviae remains floating on the water surface for some time. In

comparison with aerial net collection of flying adults for examination, the collection and examination of chironomid pupal exuviae (the cast pupal skin) provides a methodology for more efficiently surveying the occurrence and distribution of chironomid species. Skimming surface waters with a hand-held fine mesh net along leeward shorelines of lakes yields numerous pupal exuviae (sometimes thousands) so that community composition may be rapidly established, faunal checklists prepared and rare forms often discovered. A methodology to monitor lake water quality, based on collecting chironomid pupal exuviae - the **C**hironomid **P**upal **E**xuviae **T**echnique (CPET) - was described by Wilson and Ruse (2005).

Murray (2010) recently reported twenty new records of Chironomidae for Ireland from CPET examination of seasonal collections of chironomid pupal exuviae in Irish lakes made by field research staff of the Environmental Protection Agency in 2006, 2007 and 2008 as part of the Agency's Lakes Monitoring Programme. Examination of an additional set of samples, collected during 2009, has yielded records of another four chironomid species previously unknown from Irish waters. Three belong to the subfamily Orthocladiinae and one to the Chironominae. In addition, exuviae of *Parochlus kiefferi* (Garrett, 1925), subfamily Podonominae, were discovered in one sample examined representing a new Irish site record for this rare species.

Methodology and abbreviations used

All of the new records reported here are derived from examination of pupal exuviae. Slide preparations were made, using Euparal as mountant, following procedures outlined in Pinder (1986) and determinations are primarily based on Langton and Visser (2003). Voucher slide-mounted specimens have been deposited in The National Museum of Ireland. Citation of distribution records for the named species follow a general format: county, lake or site name and location, letter and six-figure Irish Grid reference number, Principal River Catchment Name, Hydrometric Area number (HA), River Basin District (RBD) and date of record. Forty hydrometric areas are designated for the island of Ireland. Each area is assigned a number from 01 to 40 and comprises a single large river catchment or a group of smaller catchments.

Hydrometric areas are grouped into eight River Basin Districts (see <www.epa.ie> for details). The following additional abbreviations are used: HCCIC, Heritage Council Collection of Irish Chironomidae (Murray, 2005); NMI, National Museum of Ireland; m.a.s.l., metres above sea level.

New records for Ireland

SUBFAMILY ORTHOCLADIINAE

***Cricotopus* (*Isocladius*) *speciosus* (Goetghebuer, 1921)**

LIMERICK: Bleach Lough, Pallaskenry (R441569), River Maigue Catchment, HA 24, Western RBD, 28 July 2009.

Cricotopus (*Isocladius*) *speciosus* is known from Austria, Belgium, France, Germany, Great Britain, Russia (Central and Northern European Territories, East Siberia), Spain and The Netherlands. Ten species of *Isocladius* are previously on record for Ireland.

***Parakiefferiella fennica* Tuiskunen, 1986**

DONEGAL: Lough Eske, Blue Stack Mountains (G973844), River Eske Catchment, HA 37, North Western RBD, 22 April 2009.

Parakiefferiella fennica is reported from western Europe including Finland, France, Germany, Great Britain, Norway, Portugal, Spain and Sweden (Sæther and Spies, 2011). Five *Parakiefferiella* species, including *Parakiefferiella* sp. *Pe* 1 Sensu Reiss, 1968 (Murray, 2010) are previously known from Ireland.

***Psectrocladius* (*Psectrocladius*) *schlienzi* Wülker, 1956**

DONEGAL: Lough Barra, Comeen (B935119), Gwebarra River Catchment, HA 38, North Western RBD, 10 June and 29 July 2009. **WICKLOW**: Upper Glendalough Lake, Wicklow Mountains National Park (T100960), Avoca -Vartry Catchment, HA 10, Eastern RBD, 29 July 2009.

Psectrocladius schlienzi is widely distributed in Europe (Sæther and Spies, 2011).

SUBFAMILY CHIRONOMINAE

***Cryptotendipes usmaensis* (Pagast, 1931)**

CLARE: Castle Lough, Kilmurry, Sixmilebridge (R481688), Owenogarney/Bunratty River Catchment, HA 27, Shannon RBD, 12 June 2009 and 17 September 2009.

This species is widely distributed in Europe and also occurs in northern Russia (Sæther and Spies, 2011).

SUBFAMILY PODONOMINAE

***Parochlus kiefferi* (Garrett, 1925)**

Some 15 genera with 158 species are currently recognized in the subfamily Podonominae. The genus *Parochlus* is the most widespread, with 48 species known worldwide only one of which, *P. kiefferi,* occurs in the northern hemisphere where it has a Holarctic distribution (Ashe and O'Connor, 2009). The species is widely, if sporadically, distributed in northern latitudes of the Western Palaearctic and mountainous regions of Central Europe. Larvae typically inhabit wet moss in springs, trickles and small streamlets originating from springs in mountainous or high latitude regions where lower temperatures (0.4-8.8ºC) prevail (Thienemann, 1937; Brundin, 1966).

Previous distribution records of *Parochlus kiefferi* from Ireland

DUBLIN: Maureen's Brook, Headwaters of the River Dodder (O128175) (490 m.a.s.l.), River Dodder catchment HA 9, Eastern RBD, 18 July 1950, pupa, leg. C. F. Humphries.

The mature pupa collected from a first order stream on the northern slope of Kippure Mountain by C. F. Humphries, University College Dublin, in 1950 constituted the first finding of the species in Ireland. The record was not documented until the specimen was discovered in the Humphries slide collection and reported by Murray and Ashe (1982). The slide of the mature pupa, prepared by Humphries, is deposited as number 122 in HCCIC, NMI (Murray, 2005). More recently an additional four slide preparations, of three larvae and one mature pupa, were found in the Humphries collection. All larvae were collected at the same location

(Maureen's Brook) and the preparations have labels, in Humphries' handwriting "*Podonomus kiefferi*"; one slide is dated "July", one is dated "15.8.50" and the third slide has no date. Regrettably, the slide of the mature pupa was broken and the original label missing. Presumably the specimen was collected at the same site but it is not known whether it was collected in July or August of 1950. Thirty two years after the first finding by Humphries, Dr P. Ashe revisited the area and found a mature pupa at the same location. That specimen is now in NMI, preserved in alcohol, with the label "*Parochlus kiefferi*. Top of River Dodder, Co Dublin, mature male pupa, GR O127175, in moss in stream 50m from source, 10ºC, leg P. Ashe".

DONEGAL: Lough Inshagh track, Glenveagh National Park (C035210), (500 m.a.s.l.) Owenveagh Catchment, HA 38, North Western RBD, 13 May 1986, adult male in sweep-net collection, leg. L. J. Heneghan (Heneghan, 1986).

This record, which constituted the second site record of the species in Ireland, is hitherto unpublished. A slide preparation of the adult male specimen is deposited in NMI as HCCIC specimen number 121 (Murray, 2005).

New distribution record for *Parochlus kiefferi*

WICKLOW: Lough Tay, Luggala (O163008), Cloghoge - Avonmore River Catchment, Hydrometric Area 10, Eastern RBD, 31 March 2009, 250 m.a.s.l., at base of the eastern slopes of Luggala Mountain.

Lough Tay lies approximately 10km south of the site of the first record of the species in 1950 (River Dodder headwaters) in the same mountain range but in a separate catchment of the adjoining Hydrometric Area 9. Based on knowledge of the larval habitat (Thienemann, 1937), it may be assumed that the pupal exuviae, collected on the lake surface, was passively carried to the lake by downstream drift in one of the inflowing mountain streams from the steep sided surrounding Luggala Mountain (595 m.a.s.l). This record from 31 March 2009 indicates an earlier seasonal emergence for the species since the previous records of pupae from the headwaters of the River Dodder were in July and August 1950 (leg. Humphries) and September 1982 (leg. Ashe) while the record of the adult from Lough Inshagh was in the month of May in

1986 (leg. Heneghan).

Acknowledgements

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DISTRIBUTIONAL RECORDS OF IRISH PLATYGASTROIDEA: PLATYGASTRINAE AND CERAPHRONOIDEA: CERAPHRONIDAE INCLUDING *APHANOGMUS ELEGANTULUS* NEW TO IRELAND

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Abstract

Recent additions to the Irish platygastrid and ceraphronid faunas are noted. *Aphanogmus elegantulus* Förster, 1861 is added to the Irish list. Distributional records are presented.

Key words: Platygastroidea, Ceraphronoidea, Ireland, *Aphanogmus elegantulus*, new records, distribution.

Introduction

Since Buhl and O'Connor (2010), the following species have been added to the Irish list: *Acerotella humilis* (Kieffer, 1913); *Allotropa mecrida* (Walker, 1835); *Amblyaspis crates* (Walker, 1835); *Fidobia hispanica* Popovici and Buhl, 2010; *Inostemma frivaldszkyi* Szelényi, 1938; *Platygaster ashei* Buhl and O'Connor, 2012, *Platygaster leptines* Walker, 1835; *Platygaster nashi* Buhl and O'Connor, 2011; *Platygaster uniformis* Buhl, 2006; *Synopeas chica* Buhl, 2004; *Synopeas erinum* Buhl and O'Connor, 2011; *Synopeas velutinum* (Walker, 1835) (Popovici and Buhl, 2010; Buhl and O'Connor, 2011a, b, c, 2012a, b).

The specimens of *Fidiobia synergorum* (Kieffer, 1921), reported from Co. Wicklow by O'Connor *et al*. (2004), were found by Popovici and Buhl (2010) to belong to their new species *F. hispanica*. *F. synergorum* should be deleted therefore from the Irish list.

O'Connor, Nash and Broad (2009) reported only one species of Ceraphronoidea from Ireland *viz. Aphanogmus nanus* (Nees, 1834). Since then, a further twelve species have been

recorded. These are: *Aphanogmus abdominalis* (Thomson, 1859); *A. compressus* (Ratzeburg, 1852); *A. fasciipennis* Thomson, 1858; *A. fumipennis* Thomson, 1858; *A. gracilicornis* Förster, 1861; *A. hibernicus* Buhl, O'Connor and Ashe, 2010; *A. microneurus* Kieffer, 1907; *A. tenuicornis* Thomson, 1858; *A. terminalis* Förster, 1861, *A. vicinus* Förster, 1861, *Ceraphron bispinosus* (Nees, 1834); *C. trissacantha* Kieffer, 1907) (Buhl, O'Connor and Ashe, 2010; Buhl and O'Connor, 2011d, e). In this paper, another one (*Aphanogmus elegantulus* Förster, 1861) is added, bringing the known Irish fauna to fourteen species. Voucher material of *A. elegantulus* will be deposited in the National Museum of Ireland.

In addition, other Irish platygastrid and ceraphronid material collected by JPOC and named by PNB contained numerous interesting records and these are given below. Unless otherwise stated, distributional data are from Buhl and O'Connor (2010). New county records are indicated by an asterisk *. The Irish counties are shown (Fig. 1).

PLATYGASTROIDEA: PLATYGASTRINAE

***Amblyaspis crates* (Walker, 1835)**

WEXFORD: Ballyteige (S9504), ♀ 21 August 2011, swept from vegetation on the sand-dunes.

Amblyaspis crates was previously only known in Ireland from two males collected in Stoneyford, Co. Wexford (Buhl and O'Connor, 2011b). In the British Isles, it has also been recorded from the Isle of Wright and from the Isle of Man (Buhl and Notton, 2009).

***Amblyaspis roboris* (Haliday in Walker, 1835)**

***CAVAN:** Dun na Rí (N7997), ♀ 29 April 2011, swept in mixed woodland.

Amblyaspis roboris is widely distributed in Ireland.

***Amblyaspis scelionoides* (Haliday in Walker, 1835)**

WICKLOW: Powerscourt (O2012), ♂ 15 June 1988, swept in mixed woodland.

Amblyaspis scelionoides is widely distributed in Ireland.

***Iphitrachelus lar* Haliday, 1835**

WEXFORD: Slieve Coiltia (S7221), ♀ 4 July 2011, swept from vegetation near the 270m summit.

Iphitrachelus lar was previously known from Cos Down and Wexford. In the latter county, a male was taken in Oaklands Wood near New Ross.

***Leptacis laodice* (Walker, 1835)**

CARLOW: St Mullins (S7238), River Barrow, ♂♂ 5 August 2010, swept from the river bank.

***Leptacis ozines* (Walker, 1835)**

WEXFORD: Craywell, New Ross (S7228), ♀♀ 17 August 2011, swept from an overgrown area in a small public park on a steep hill; Stoneyford near Broadway (T1009), ♂ 17 August 2010, ♂♂ 18 August 2011, swept from vegetation beside a stream.

***Platygaster aegeus* Walker, 1835**

WEXFORD: Stoneyford near Broadway (T1009), ♀ 18 August 2011, swept from vegetation beside a stream.

***Platygaster chloropus* Thomson, 1859**

WEXFORD: Craywell, New Ross (S7228), ♀ 9-10 August 2010, swept from an overgrown area in a small public park on a steep hill.

***Platygaster demades* Walker, 1835**

WATERFORD: Dunmore East (X6999), ♀ 11 August 2010, swept from the coastal cliffs at Black Knob; ***WEXFORD:** Ballyteige, ♀ 21 August 2011, JPOC; Curracloe, ♀♀ 14-15 August 2010, JPOC.

Previously recorded from Cos Monaghan and Waterford.

***Platygaster henkvlugi* Buhl, 1996**

***WEXFORD:** Ballyteige (S9504), ♀ 11 August 2011, swept from vegetation on the sand-dunes; Slieve Coiltia (S7221), ♀♀ 4 July 2011, swept from vegetation near the 270m summit.

Platygaster henkvlugi was previously recorded from Co. Clare by Buhl and O'Connor (2008). The species was abundant on Slieve Coiltia.

***Platygaster nashi* Buhl and O'Connor, 2011**

WEXFORD: Ballyteige (S9504), ♂♂♀♀ 21 August 2011, swept from vegetation on the sand-dunes.

Platygaster nashi was recently described from 3♀♀ taken at Ballyteige in July 2010 (Buhl

and O'Connor, 2011c). The species was abundant at the same site in August 2011. Two specimens of *P. nashi* have now been found in Sweden (Buhl, unpublished data).

***Platygaster nisus* Walker, 1835**

***WEXFORD:** Craywell, New Ross (S7228), ♀ 9-10 August 2010, swept from an overgrown area in a small public park on a steep hill; Curracloe (T1127), ♀ 14-15 August 2010, swept from the sand-dunes; Stoneyford near Broadway (T1009), ♀ 17 August 2010, swept from vegetation beside a stream.

Platygaster nisus was previously known from Cos Dublin, Sligo and Wicklow.

***Platygaster oebalus* Walker, 1835**

WEXFORD: Slieve Coiltia (S7221), ♀ 4 July 2011, swept from vegetation near the 270m summit.

***Platygaster oscus* Walker, 1835**

***WEXFORD:** Stoneyford near Broadway (T1009), ♀ 18 August 2011, swept from vegetation beside a stream.

Platygaster oscus was previously reported from Co. Wicklow.

***Platgaster sagana* Walker, 1835**

WEXFORD: Ballyteige (S9504), ♀ 6 August 2010, swept from vegetation on the sand-dunes.

***Synopeas breve* Buhl, 1998**

***WEXFORD:** Craywell, New Ross (S7228), ♂ 9-10 August 2010, swept from an overgrown area in a small public park on a steep hill.

Synopeas breve was previously known from Cos Dublin and Tyrone.

***Synopeas curvicauda* (Förster, 1856)**

***CARLOW:** St Mullins (S7238), River Barrow, ♀ 5 August 2010.

Synopeas curvicauda was only previously known in Ireland from a female taken in Oaklands Wood, Co. Wexford (Buhl and O'Connor, 2009).

***Synopeas euryale* (Walker, 1835)**

WEXFORD: Baginbun (S8003), ♀ 9 August 2011, swept from vegetation on the beach; Ballyteige (S9504), ♀ 6 August 2010, swept from vegetation on the sand dunes; Craywell, New

Ross (S7228), ♂ 9-10 August 2010, swept from an overgrown area in a small public park on a steep hill.

***Synopeas inerme* Thomson, 1859**

WEXFORD: Baginbun (S8003), ♀ 9 August 2011, swept from vegetation on the beach; Craywell, New Ross (S7228), ♀ 9-10 August 2010, swept from an overgrown area in a small public park on a steep hill; Curracloe (T1127), ♀ 14-15 August 2010, swept from the sand-dunes.

Synopeas inerme was previously only known in Ireland from Ballyteige, Co. Wexford.

***Synopeas noyesi* Buhl, 2009**

WEXFORD: Curracloe (T1127), ♀♀ 14-15 August 2010, swept from the sand dunes.

Synopeas noyesi was described from from English (♀ holotype and ♀ paratype) and Irish material (♀ paratype). The Irish specimen was taken by JPOC at Dunguaire, Kinvara, Co. Galway on 4 June 1992 (Buhl, 2009). The species has since been recorded from Cos Kerry and Wexford.

***Synopeas rhanis* (Walker, 1835)**

***MONAGHAN:** Rossmore Park (H6531), ♀ 27 April 2011, swept from vegetation along a stream; **WEXFORD:** Ballyteige (S9504), ♀ 6 August 2010, swept from vegetation on the sand dunes; Curracloe (T1127), ♂♂♀ 14-15 August 2010, swept from the sand-dunes.

Synopeas rhanis was previously recorded from Cos Cork, Waterford and Wexford.

***Synopeas sosis* (Walker, 1835)**

WEXFORD: Craywell, New Ross (S7228), ♀ 9-10 August 2010, swept from an overgrown area in a small public park on a steep hill.

Synopeas sosis is widely distributed in Ireland.

CERAPHRONOIDEA: CERAPHRONIDAE

***Aphanogmus compressus* (Ratzeburg, 1852)**

WEXFORD: Craywell, New Ross (S7228), ♀ 9-10 August 2010, swept from an overgrown area in a small public park on a steep hill; Curracloe (T1127), ♂ 7 August 2009, ♂ 14-15

August 2010, swept from the sand dunes.

Aphanogmus compressus was previously only known in Ireland from a male taken at Stoneyford, Co. Wexford (Buhl and O'Connor, 2011d).

***Aphanogmus elegantulus* Förster, 1861** **New to Ireland**

***WEXFORD:** Slieve Coiltia (S7221), ♀♀ 4 July 2011, swept from vegetation near the 270m summit.

Aphanogmus elegantulus is also new to the British Isles (Broad, 2011). The species has been reported from Denmark, Sweden and Switzerland (Polaszek, 2011).

***Aphanogmus fumipennis* Thomson, 1858**

***KILKENNY:** Woodstock Park, Inistioge (S6436), ♂ 8 August 2010, swept from mixed woodland.

Aphanogmus fumipennis was previously known from Co. Wexford (Buhl and O'Connor, 2011e).

***Aphanogmus tenuicornis* Thomson, 1858**

WATERFORD: Woodstown (S6904), ♀ 16 August 2011, swept from vegetation on the beach; **WEXFORD:** Ballyteige (S9504), ♀ 11 August 2011, swept from vegetation on the sand-dunes; Curracloe (T1127), ♀ 22 August 2011, swept from the sand dunes.

***Aphanogmus terminalis* Förster, 1861**

WEXFORD: Curracloe (T1127), ♀ 22 August 2011, swept from the sand dunes.

Aphanogmus terminalis was previously only known from two males taken at the Ballyteige sand dunes, Co. Wexford (Buhl and O'Connor, 2011e).

***Aphanogmus vicinus* Förster, 1861**

***CAVAN:** Virginia Woods (N5987), ♀ 2 October 1989, swept in mixed woodland.

***Ceraphron trissacantha* Kieffer, 1907**

WEXFORD: Oaklands Wood (S7125), ♀ 31 July 2007, swept in mixed woodland; Stoneyford near Broadway (T1009), ♀ 17 August 2010, ♀♀ 18 August 2011, swept from vegetation beside a stream.

Ceraphron trissacantha was previously known from a male and a female taken at two other

sites in Co. Wexford (Buhl and O'Connor, 2011e).

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FIGURE 1. The counties of Ireland.

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A RECORD OF *MICROMMATA VIRESCENS* (CLERCK, 1757) (ARANEAE: SPARASSIDAE) FROM THE KILLARNEY NATIONAL PARK, CO. KERRY, IRELAND

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Micrommata virescens (Clerck, 1757) (synonym *M. roseum* (Clerck, 1757)) is a bright green, medium-sized spider which is uncommon in Ireland. It is the only member of the family Sparassidae found in this country. Colloquially known as the Green Huntsman, this striking species is found across northern Europe, but is generally quite rare. Both sexes have a vivid green carapace and legs and are unlikely to be mistaken for any other species, except possibly *Araniella curcurbitina* (Clerck, 1757), due to its similar colouration. The female *M. virescens* has a bright green abdomen, while the similarly coloured adult male has a bright red band running its length. *M. virescens* catches its prey by ambush.

Micrommata virescens has been previously recorded in Ireland in Cos Clare, Galway and Kerry (Helsdingen, 1996). The Galway record was from near Galway town in 1885; the Kerry record was of an "adult female near Killarney" in 1895 (Carpenter, 1898).

KERRY. Eamonn's Wood, Killarney National Park (V925843), 2 April 2011. A single submature ♀.

Micrommata virescens was found in a dry clump of purple moor grass (*Molinia caerulea*) at the margin of oak-birch-holly (*Quercus-Betula-Ilex*) woodland (WN1, as per Fossitt, 2000). Two previous discoveries of *M. virescens* were made by the author in the same area in the preceding year, once in the same woodland, and on steep upland woodland nearby. Both discoveries were made on 21 October 2010. However these specimens were photographed but not retained. Both woodlands are dominated by holly (*Ilex aquifolium*). Ground cover is dominated by mosses. *M. caerulea* is present in patches at both sites.

The April specimen moulted to adulthood whilst in captivity. Following this, the epigyne was fully developed, and the total body length was recorded as 11mm. It had previously measured 10mm.

M. virescens was seen to anchor itself with silk to the underside of the lid on the container in which it was kept and moulted hanging upside-down. Whilst in captivity, *M. virescens* was observed to prey on soil invertebrates and the banded cricket nymphs (*Gryllus assimilis* (Fabr.)) (Orthoptera) provided for it. The spider was seen to carry its prey in its jaws.

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FIRST IRISH RECORD OF *EPISINUS MACULIPES* CAVANNA, 1876 (ARANEAE, THERIDIIDAE)

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Abstract

A specimen of *Episinus maculipes* Cavanna, 1876 was found in a house in an urban location in County Dublin, the first record of the species in Ireland. The species is spreading northwards through Europe from the Mediterranean area.

Key words: Araneae, Theridiidae, *Episinus maculipes*, Ireland, first record.

The first Irish record of *Episinus maculipes* Cavanna, 1876

A female spider was found in the author's flat, 48 Rathmines Road Upper, Rathmines, Dublin 6 (O157314) on a wall close to an open window late in the evening on 30 August 2012. It was identified as *Episinus maculipes* Cavanna, 1876 using Hillyard (1983), Locket *et al.* (1974), Roberts (1993) and Knoflach *et al.* (2009). The species is not listed in Helsdingen (1996) nor in any subsequent publications on Irish spiders. The present record is therefore the first one for the species in Ireland.

The window opens onto a small yard and this into a garden. Examination of ivy *Hedera* on walls and trunks of apple-trees *Malus* and, of some shrubs in the garden on the morning of 1 September 2012 failed to reveal further specimens. A torchlight search that evening and on the evening of 2 September, principally of *Hedera*, also proved negative.

The epigyne of *E. maculipes* is easily distinguished from those of *E. angulatus* (Blackwall, 1836) and *E. truncatus* Latreille, 1809, the two other species from the genus known from Ireland and Britain. Knoflach *et al.* (2009) distinguish the species from similar ones occurring much further south and into Africa. Rather than showing a longitudinal median sternal stripe

(Hillyard, 1983) which has been suggested distinguishes it from the two other British species (Roberts, 1993), the sternum had a relatively large pale spot in the anterior area followed by a nearly conjoined smaller pale spot. Stevens and Smithers (1991) noted that a median band was also present in some specimens of *E. truncatus*. The carapace had a very clear dark median band and thin dark margin, the area in-between being otherwise very pale but for some small dark patches. The other Irish species have a uniformly darkish brown carapace.

The specimen has been presented to the National Museum of Ireland, Natural Hisory.

The distribution of *Episinus maculipes*

Originally probably limited to Mediterranean Europe and North Africa, this expansive species is spreading northwards and eastwards through Europe and into Russia (Knoflach and Thaler, 2000; Knoflach *et al*., 2009; Platnick, 2012). *Episinus maculipes* has been recorded from the following European countries and islands: Austria, Belgium, Bulgaria, Corsica, Crete, Croatia, France, Germany, Great Britain, Italy, Portugal, Sardinia, Sicily, Slovenia, Spain, Switzerland and the Ukraine (Helsdingen, 2012). It has been recorded for the first time within the last twenty-five years in a significant number of European countries, including Belgium, 2010 (Arnaud, 2010); Bulgaria, 1995-1998 (Lazarov *et al*., 2001); Crete, 1999 (Knoflach and Thaler, 2000); Germany, 1991 (Kilchling, 1994); Hungary, 2009 (Pflieger *et al.*, 2012); Slovenia, 1995 (Kuntner, 1997); Switzerland, 1987 (Centre Suisse de Cartographie de la Faune, 2012) and the Ukraine, 2004 (Kovblyuk *et al*., 2008). The species was however recorded in Austria in 1905 (Kulczynski, 1905). Its presence in Britain was first noted in 1934 (Hull, 1934) and it was subsequently considered very rare there. However, collecting over the past 20 years has shown it to occur along much of the southern coast (Stevens and Smithers, 1991; Smithers, 1998; Harvey *et al.*, 2002). In France, it is known from two areas: the Mediterranean area from Var inland to the Ardeche and, Atlantic zone France in eastern Brittany and southern départements of the Pays de la Loire; it is suggested that the spider probably occurs throughout the country (Peru, 2006).

It is uncertain if the first records from countries with Mediterranean climates are indicative

of recent colonisation or of previous under-sampling; the species being uncommon. The few records of the spider north of the Mediterranean area are reflected in its absence from a review of central European spiders and their habitats (Hänggi *et al*., 1995). The Irish occurrence is surely part of the pattern of northern expansion and the Dublin record at latitude 53°21' N would seem to be the northernmost European record to-date. The author is certain that he cannot have introduced the specimen himself.

Preferred habitat and microsite

Woodland; low branches of trees and tall shrubs, occurring in a wide variety of woodland types varying from country to country (and with climate). Overgrown vertical surfaces (natural and artificial and perhaps preferring insolated areas) – ivy on walls, tree-trunks, cliff/quarry faces. Riparian, lacustrine, littoral situations – quite a few records are from coastal situations (possibly indicating recent colonisation?). If locally resident on trees, the species seems also to occur on local field-layer and at ground level.

In a study of a forest in Slovenia, most specimens were caught by hand-collecting above knee-level by night and by beating lower branches of trees onto a collecting sheet. Specimens were also swept with a net (relatively even numbers night and day) and fewer again were collected by hand near ground level (Kuntner and Kostanjsek, 2000). Stevens and Smithers (1991) collected it from canopy and field-layer respectively in two disjunct British localities.

In Britain, often occurring on sycamore *Acer pseudoplatanus*, holm oak *Quercus ilex*, amongst tall sturdy shrubs and bushes and in ivy on tree trunks (Hillyard, 1983). Smithers (1998) suggests that coastal woodlands are the best targeted habitat in the south of England. Holm oak in France (Peru, 2006); Spruce *Picea* and Douglas fir *Pseudotsuga menziesii* in Germany (Kilchling, 1994); *Pinus* in Italy (Knoflach and Thaler, 2000); deciduous forest in Hungary (Pfliegler *et al*., 2012), *Prunus-Pinus-Carpinus* forest in Bulgaria with well-developed understorey (Lazarov *et al*., 2001), Beech forest *Luzulo-Fagetum* and, hornbeam *Carpinus* forest with Autumn moor-grass *Seslerio autumnalis* in Slovenia (where it was abundant) (Kuntner, 1997; Kuntner and Kostanjsek, 2000 respectively), oak *Quercus*, tree heath *Erica*

arborea and scrub in Italy (Knoflach *et al.*, 2009), scrub in Greece and Crete (Knoflach *et al.*, 2009). On field-layer; long grasses in Britain (Smithers, 1998), *Juniperus* in France (Peru, 2006) and the Ukraine (Kovblyuk *et al.*, 2008), Mediterranean scrub vegetation (Kuntner and Kostanjsek, 2000; Knoflach *et al.*, 2009), garrigue in France (Peru, 2006). It is far less frequent at ground level but has been found amongst mosses, under stones (Lazarov *et al.*, 2001 (in forest); Pflieger *et al.*, 2012) or under discarded artefacts.

Observations of the species in anthropogenic situations are made by Stevens and Smithers (1991) who found it in and around Plymouth town, England; from uncut grassland in a city park and underneath rubbish on an old railway line. Smithers (1998) also found an immature specimen under rubbish. The former authors found specimens on vegetation in two areas close to Plymouth. Braud (2007) observed the species in a dwelling in north-western France and Arnaud (2010) collected it from a wooden sign post in Belgium. Occurrences in anthropogenic habitats suggest that the species can disperse by human agency but it is not a truly synanthropic species. In northern climates, *Episinus maculipes* may prefer the artificially elevated temperatures occurring in built-up environments. Braud (2007) and Hillyard (1983) both note the southern aspect of some of the locations in which the spider was captured.

Given the broad habitat spectrum that the species can occupy, and the relative abundance of such, the spider's rarity must be related to factors other than availability of appropriate habitat. In Britain, Hillyard (1983) found *E. maculipes* not to be particularly abundant (two specimens were collected per tree) and Smithers (1998) echoes this, noting that only one or two specimens were taken during each collecting expedition and that a large sampling effort is required to locate extra specimens.

Habits and seasonality

The spider can be most easily observed at dusk/night when it emerges to build a web which consists of two bifurcating strands in the form of an inverted Y (Hillyard, 1983), from which the spider hangs upside down. The egg-sac is white, pear-shaped and hangs from a short stalk (Jones, 1989).

Adult females occur usually from June to September, males in the same period but they are generally less abundant than females by end of August and less common still through September (Harvey *et al*., 2002).

Conservation status

The species has RDB3 (Nationally rare) status in Britain, however this classification may soon change in view of its spread. It is obviously misguided to pretend that the species has conservation status in Ireland simply because it is still absent from a significant area of Europe. It should be considered an immigrant spider, most probably recently arrived, which has a good prospect of building a resident community in Ireland. Populations or specimens could well remain undetected elsewhere in Ireland, especially along the east and south coasts.

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A SURVEY OF THE ORIBATIDA AND MESOSTIGMATA (ACARINA) OF IRISH FORESTS

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Abstract

The FunctionalBio project investigated biodiversity in Irish forestry providing data on the diversity and distribution of a range of organisms. Here, we present data on the oribatid and mesostigmatid mites (Arachnida: Acari) found in the study in 25 sites across the country divided into five forest types selected to represent the major forest types in Ireland and including both results of components of the canopy and soil species.

Ninety seven species of Cryptostigmata and 32 species of Mesostigmata were found among the 18,358 individuals identified. The oribatid genus *Tricheremaeus* Berlese, 1908 is recorded for first time for Ireland and five species are added to the Irish species list: *Phthiracarus* (*P.*) *laevigatus* (Koch, 1841), *Carabodes coriaceus* Koch, 1835, *Quadroppia* (*Coronoquadroppia*) *monstruosa* Hammer, 1979, *Atropacarus wandae* (Niedbała, 1981) and *Lauroppia tenuipectinata* Subías and Rodriguez, 1988. The identification of a further three potential new records belonging to the genera *Damaeus* and *Belba* are currently being confirmed.

The average number of taxa found at each site was 41.6 and the richness varied significantly between forest types, with the greatest diversity occurring in oak stands. This study shows that the inclusion of canopy as well as soil species markedly increases the number of species found per site.

Keywords: Acarina, Oribatida, Mesostigmata, Ireland, forest, new records

Introduction

Forest habitats once again represent a significant proportion of Ireland's surface area. Although forest is the climatic climax vegetation for most of Ireland, the total forested area had declined to only 1.4% by 1905. However, it now represents approximately 10% of the country. More than 90% of the forests are plantations of exotic trees such as Sitka spruce (*Picea sitchensis*), a species native to North America, which has been used widely for afforestation purposes in Ireland (Fahy and Foley, 2002) because it is a productive canopy species (Forest Service, 2000). Little is known of the biota inhabiting these plantations (Bolger, 2004) nor indeed of the other forests in Ireland and this is especially the case for the invertebrate fauna (Fahy and Gormally, 1998).

Mites are perceived as being one of the most species rich arthropod taxa. Although only about 45,000 species have been described to-date, current estimates of the number of extant species range from 500,000 to a million and they are perceived to be a hyperdiverse (or "megadiverse") group (Hammond, 1992; Ødegaard, 2000; Walter and Behan-Pelletier, 1999). This group has received relatively little attention in Irish forests. There are a number of incidental records from woodlands (e.g. Halbert, 1915) and a number of studies have been carried out in apple orchards, short rotation forestry on peatland and of mites occurring in lichens (MacNeill, 1966; MacQuillan, 1966; Bolger, 1985; Momen, 1987, 1988) and the only studies, prior to the commencement of this project which concentrated on the microarthropod fauna of forests, examined the fauna of soil and fungal fruiting bodies in these habitats (Heneghan and Bolger, 1996a, b, 1999; O'Connell and Bolger, 1997a, b). However, mites, and particularly Oribatida and Gamasida, occur in the canopy, on the bark (Proctor *et al.*, 2002), in epiphytes (André, 1985; Nicolai, 1993) and in suspended soils (Behan-Pelletier *et al.*, 1993; Winchester *et al.*, 1999) and these habitats have not been investigated in Ireland.

The unique character of these Irish forests and the paucity of work on the mites in Irish forests make a study of this component of the fauna essential and potentially very rewarding. In this paper, we report on the Acarina (Cryptostigmata and Mesostigmata) fauna of five forest types including the examination of both components of the canopy and soil species.

Materials and methods

Study sites

The project was designed to sample mites, focusing in the suborders Gamasida (Mesostigmata) and Oribatida (Cryptostigmata) in five forest types: oak (*Quercus robur*, *Q. petraea*), ash (*Fraxinus excelsior*), Scot's pine (*Pinus silvestris*) and first and second rotation Sika spruce (*Picea sitchensis*). A single stand of each forest type was selected in five different regions of the country. Site information is presented in Table 1.

Sampling and extraction of mites

Within each site, five and sometimes six, random trees were selected and nine types of sample collected from each. These samples were moss on the upper, middle and lower canopy, branches from the upper middle and lower canopy (for examination of the fauna of bark), a sample of moss from the base of the tree, a sample of the soil organic horizon and of the upper five centimetres of mineral soil under the tree.

The sampling followed protocols developed by Finnamore *et al.* (1998) and Behan-Pelletier (pers. comm.). Climbers collected five sections of a single branch (approximately 40cm in length) from the top of the living crown, mid-crown and at the bottom of the living canopy in each tree. The epiphytic moss cover was removed and the branches and twigs were bathed in a dilute solution of NaOH for 48 hours. The liquid was then filtered and the animals collected. Samples from a particular height of a tree were pooled to give a single sample. Thus, there were three compound samples for each tree.

Samples of the moss occurring in the canopy were collected at each of the heights on each tree using a scraper and pooled for each particular height and tree. The sizes of these samples varied depending on the amounts of moss present on the trees. Finally, one moss sample was collected from the mats on the bark at the base (0-50cm) of each of the trees sampled. All the fauna inhabiting moss habitats were extracted using a Macfadyen extractor. Samples of the organic and mineral soil horizons were collected using a 5cm diameter corer and the animals extracted from these using the Macfadyen extractor.

The systematics followed Balogh and Balogh (1992) and Subías (2004), with some modifications, for oribatids and Karg (1993) for gamasids. All the biological material is deposited in Lab.1 (Terrestrial Ecology), UCD School of Biology and Environmental Science, Dublin.

Results

Ninety seven species of Cryptostigmata and 32 species of Mesostigmata were found among the 18,358 individuals identified (Table 2).

The species found most abundantly were *Phauloppia lucorum* (Koch, 1841), *Chamobates schuetzi* (Oudemans, 1902), *Zygoribatula exilis* (Nicolet, 1855), *Camisia segnis* (Hermann, 1804), *Euremaeus oblongus* Koch, 1835, *Parachipteria punctata* (Nicolet, 1855), *Ommatocepheus ocellatus* (Michael, 1882), *Dissohrina ornate* (Oudemans, 1900), *Achipteria acuta* Berlese, 1908, *Moritzoppia oreia* Colloff and Seyd, 1991, *Porobelba spinosa* (Sellnick, 1920), *Licneremaeus licnophorus* (Michael, 1882), *Lauroppia tenuipectinata* Subías and Rodríguez, 1988, *Moritzoppia keilbechi* (Moritz, 1969), *Quadroppia quadricarinata* (Michael, 1885), *Medioppia subpectinata* (Oudemans, 1900), *Eupelops acromios* (Hermann, 1804), *Hermannia gibba* (Koch, 1839) and *Phtiracarus affinis* (Hull, 1914). These are all cryptostigmatid species which have been recorded primarily in woodland habitats in Ireland and more than 200 individuals of each were recovered in this study.

The abundant species tended to have a broad distribution (e.g. *C. schuetzi* was present in 24 out of 25 sites while *D. ornata* and *P. lucorum* were recovered in 21 out of the 25 sites surveyed). However, species such as *M. keilbachi* only occurred at three sites, all of them oak woodlands, and *L. tenuipectinata* occurred in five sites three of which were broadleaved (and just a single individual was found in a Sitka spruce stand), while *L. licnophorus* was found in six sites, five of which were broadleaved. *E. acromios* shows a trend to inhabit preferentially conifers, i.e. Scots pine and, mainly, Sitka spruce sites, no matter if are first or second rotation, although the species is present in other forest types too but in very small numbers.

Many of the common and widespread species found in all or nearly all sites were found in

large numbers. For example, 1043 individuals of *P. lucorum* were recovered from the Torc Scots pine forest, 311 *Z. exilis* were collected just in Ross Island and 217 individuals of *Q. quadricarinata* were obtained just from Tomies site (oak) (both Co. Kerry). There were also some species which were only recovered from a small number of sites and not in any particular forest type, which were found too in large numbers (e.g. 496 individuals of *O. ocellatus* were found in the survey and 81% of those were at the Torc site in Co. Kerry.

The genus *Tricheremaeus* Berlese, 1908 (Oribatida) has not previously been recorded from Ireland. In this study, we found four individuals, which we believe are *Tricheremaeus serratus* (Michael, 1885), on oak trees at Abbeyleix (Co. Laois) and at Raheen (Co. Clare). This identification has yet to be confirmed.

Eight new species, all belonging to the mite suborder Oribatida, are added to the Irish species list. We are fully confident in our identification of five of these, *Phthiracarus* (*P.*) *laevigatus* (Koch, 1841), *Carabodes coriaceus* Koch, 1835, *Quadroppia* (*Coronoquadroppia*) *monstruosa* Hammer, 1979, *Atropacarus wandae* (Niedbała, 1981) and *L. tenuipectinata*; however, three others cannot yet be ascribed to a known species with confidence. We list them as *Belba* (*B.*) nr *corynopus* (Hermann, 1804), *Damaeus* (*D.*) nr *maximus* Mihelčič, 1957 and *Damaeus* (*Spatiodamaeus*) nr *setiger* (Kulczynski, 1902).

In addition to those new records, the earliest records of eight other oribatid species (*Caleremaeus monilipes* (Michael, 1882), *Carabodes ornatus* Štorkán, 1925, *L. licnophorus*, *M. keilbachi*, *Moritzoppia* (*M.*) *unicarinata clavigera* (Hammer, 1952), *Phthiracarus* (*Archiphthiracarus*) *bryobius* Jacot, 1930 and *Porobelba spinosa* (Sellnick, 1920)) were found in Ireland for the first time in this project but other records of these, collected later in further research projects on bogs and sand dunes habitats, have already been published (Arroyo and Bolger, 2010; Wisdom *et al.*, 2011). In fact, the genera *Caleremaeus*, *Porobelba* and *Licneremaeus* were first found in Ireland during this survey.

In addition, in other parts of this project, three of the species recorded from the genus *Zercon* (Mesostigmata) were new species recently described by Moraza *et al.* (2009) and others were new records for Ireland. For example, *M. subpectinata* was recorded in Irish Sitka spruce

plantations for the first time in Arroyo *et al.* (2007) and it is recorded from a further 20 sites in this study. In fact. this species was significantly more abundant in Sitka spruce forests that in any of the other types.

Recently recorded species such as *Leptogamasus* (*Leptogamasus*) *obesus* (Holzmann) (Arroyo *et al.*, 2008) were also recorded in a small number of sites. By contrast, some of the species which were reported in earlier publications from this project, such as *Minunthozetes* (*Inigozetes*) *reticulatus* Pérez-Íñigo, *Leptogamasus* (*Valigamasus*) *pannonicus* (Willmanm) and *Eupelops major* (Hull) (Arroyo and Bolger, 2007, 2008; Arroyo *et al.*, 2008, respectively), were not found in this more extensive study.

The average number of taxa found at each site was 41.6. However, the richness varied significantly between forest types ($F_{4,16} = 3.6$, $p<.05$). The greatest richness was found at Tomies Oak Wood, Co. Kerry and a Sitka spruce stand at Stranahely, Co. Wicklow where 75 and 71 taxa were found respectively. By contrast, only 18 taxa were found in ash stand at Donadea Forest Park in Co. Kildare and 19 in a Sitka spruce stand at Dooary, Co. Laois.

The greatest richness was found in oak stands where the average number of taxa was 59 (Fig. 1). This were significantly higher than the numbers found in ash and first rotation Sitka spruce stands where the richness was 32 and 20 respectively.

Discussion

Studies of the fauna of Sitka spruce, oak and yew *Taxus* in Ireland have previously shown that the fauna associated with the aerial parts of trees is distinct from the soil fauna and contains several species unique to these habitats (Arroyo *et al.*, 2010a, b; Arroyo *et al.*, in press). Therefore, the increased diversity reported here is to be expected and this study gives a more comprehensive picture of the fauna of forests than has previously been published for Ireland.

Mites have been known to be abundant and diverse in the canopies of temperate (Winchester *et al.*, 1999, Behan-Pelletier and Walter, 2000, Lindo and Stevenson, 2007) and tropical forests (Behan-Pelletier *et al.*, 1993) and the current study shows that specialist species also occur in the canopies of both native and introduced species in Ireland.

All of the species which were particularly abundant in the samples collected were Oribatida. Some, such as *P. punctata* while favouring woodlands, occur in many habitat types. Others, for example, all the Irish records of *M. keilbachi*, *A. acuta* and *L. licnophprus* have been recorded either in woodland or sand dune habitats (Arroyo and Bolger, 2010).

The genus *Ommatocepheus*, was recorded for the first time in Ireland by the authors (Arroyo *et al.*, in press) only from samples collected in arboreal habitats (trunk and canopies of oak and yew) in Killarney National Park, Co. Kerry, and was only found in arboreal habitats in this survey confirming its preference for arboreal niches.

Of the new records, it is interesting that while *Q. monstruosa* has a wide ecological niche with no strict habitat preferences (Subías and Arillo, 2001), *A. wandae*, *C. coriaceus* and *L. tenuipectinata* seem to have strong preferences for forests. In fact, Rajski (1968) stated that *C. coriaceus* is a species never collected in big numbers and which requires a minimum humidity in the environment and is exclusively an inhabitant of forestry.

A survey of the mite species occurring in the soils associated with different land uses in Ireland showed that the average richness of oribatids and mesostigmatids in forests was approximately 14 species per site and that the richness in coniferous forests and rough grazing was considerably higher than in broadleaved woodlands (Arroyo *et al.*, in press). This study shows that the inclusion of canopy species markedly increases the number of species per site to an average of 41.6 demonstrating the diversity of the species which occur in the canopies of Irish forests and the fact that many of these species are essentially exclusively canopy dwellers.

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TABLE 1. Name, forest type and location of sites sampled.

Forest Name	Tree Type	County	Latitude	Longitude
Ballykilcavan	Ash	Laois	53°01'N	07°07'W
Donadea	Ash	Kildare	53°20'N	06°45'W
Killough Hill	Ash	Tipperary	52°36'N	07°50'W
Ross Island	Ash	Kerry	52°03'N	09°32'W
St John's Wood	Ash	Roscommon	53°33'N	08°00'W
Abbeyleix	Oak*	Laois	52°53'N	07°22'W
Kilmacrea Wood	Oak	Wicklow	52°54'N	06°10'W
Raheen	Oak	Clare	52°53'N	08°31'W
Tomies Wood	Oak	Kerry	52°02'N	09°35'W
Union Wood	Oak	Sligo	54°12'N	08°29'W
Ballygawley	Scot's Pine	Sligo	54°12'N	08°27'W
Ballymanus	Scot's Pine	Wicklow	52°58'N	06°09'W
Bansha	Scot's Pine	Tipperary	52°27'N	08°06'W
Brittas	Scot's Pine	Laois	53°09'N	07°32'W
Torc	Scot's Pine	Kerry	52°00'N	09°31'W
Cloonagh	Sitka Spruce (1st Rotation)	Sligo	54°10'N	08°21'W
Derrybrien	Sitka Spruce (1st Rotation)	Galway	53°08'N	08°35'W
Quitrent Mountain	Sitka Spruce (1st Rotation)	Cork	52°16'N	08°27'W
Dooary	Sitka Spruce (1st Rotation)	Laois	52°56'N	07°15'W
Moneyteige	Sitka Spruce (1st Rotation)	Wicklow	52°48'N	06°18'W
Ballygawley	Sitka Spruce (2nd Rotation)	Sligo	54°12'N	08°28'W
Ballyguyroe North	Sitka Spruce (2nd Rotation)	Cork	52°15'N	08°29'W
Bohatch	Sitka Spruce (2nd Rotation)	Clare	52°57'N	08°27'W
Kinnitty	Sitka Spruce (2nd Rotation)	Offaly	53°06'N	07°40'W
Stranahely	Sitka Spruce (2nd Rotation)	Wicklow	53°00'N	06°31'W

* All oak sites are *Quercus petraea*, except for Abbeyleix which is *Quercus robur*.

TABLE 2. Species found in the sites sampled.

	ASH				OAK						SCOTS PINE				
	Ballykilcavan	Donadea	St. John's Wood	Killagh	Ross Island	Abbeyleix	Kilmacrea Wood	Raheen	Tomie's Wood	Union Wood	Ballygawley	Ballymanus	Bansha	Brittas	Torc
ORIBATIDA															
ENARTHRONOTA Grandjean, 1947															
Hypochthoniidae Berlese, 1910															
Hypochtonius rufulus Koch, 1835					+						+			+	+
Brachychthoniidae Thor, 1934															
Liochthonius (*L.*) *brevis* (Michael, 1888)															
Brachychthonius zelawaiensis Sellnick, 1928															
MIXONOMATA Grandjean, 1969															
Euphthiracaridae Jacot, 1930															
Acrotritia duplicata (Grandjean, 1953)			+				+		+		+		+	+	+
Phthiracaridae Perty, 1841															
Atropacarus wandae (Niedbała, 1981)						+									
Phthiracarus (*P.*) *affinis* (Hull, 1914)			+		+	+	+		+		+	+		+	+
Phthiracarus (*P.*) *laevigatus* (Koch, 1841)			+			+								+	
Phthiracarus (*A.*) *anonymus* Grandjean, 1933									+					+	
Phthiracarus (*A.*) *bryobius* Jacot, 1930											+				
Phthiracarus (*A.*) *montanus* Pérez-Iñigo, 1969			+		+	+		+			+			+	
Steganacarus (*S.*) *magnus* (Nicolet, 1855)			+	+	+	+	+	+	+		+	+		+	+
Steganacarus (*S.*) *michaeli* Bernini and Avanzati 1987	+		+				+	+	+		+		+	+	+
HOLOSOMATA Grandjean, 1960															
Nothridae Berlese, 1896															
Nothrus biciliatus Koch, 1841 "sp. inq."															
Nothrus palustris Koch, 1839	+	+	+												+
Nothrus pratensis Sellnick, 1928						+									
Nothrus silvestris Nicolet, 1855							+	+			+			+	+

TABLE 2 (Continued)

	ASH				OAK						SCOTS PINE				
	Ballykilcavan	Donadea	St. John's Wood	Killagh	Ross Island	Abbeyleix	Kilmacrea Wood	Raheen	Tomie's Wood	Union Wood	Ballygawley	Ballymanus	Bansha	Brittas	Torc
Crotoniidae Thorell, 1876															
Camisia segnis (Hermann, 1804)	+	+	+		+	+	+		+	+	+	+		+	+
Camisia spinifer (Koch, 1835)															
Heminothrus (*P.*) *peltifer* (Koch, 1839)			+		+		+		+		+	+	+	+	+
Nanhermanniidae Sellnick, 1928															
Nanhermannia (*N.*) *dorsalis* (Banks, 1896)	+			+							+				+
Nanhermannia (*N.*) *nana* (Nicolet, 1855)				+							+				
Hermanniidae Sellnick, 1928															
Hermannia (*H.*) *gibba* (Koch, 1839)	+	+		+	+	+	+	+	+	+	+	+	+	+	+
BRACHYPYLINA Hull, 1918															
Damaeidae Berlese, 1896															
Belba (*B.*) nr *corynopus* (Hermann, 1804)						+									
Damaeus (*D.*) nr *maximus* Mihelčič, 1957							+					+		+	
Damaeus (*P.*) *clavipes* (Hermann, 1804)			+			+	+							+	+
Damaeus (*S.*) nr *setiger* (Kulczynski, 1902)														+	
Dameobelba minutissima (Sellnick, 1929)							+								
Porobelba spinosa (Sellnick, 1920)			+					+	+	+				+	
Compactozetidae Luxton, 1988															
Cepheus latus Koch, 1835			+								+			+	
Ommatocepheus ocellatus (Michael, 1882)					+		+		+				+		+
Tritegeus bisulcatus Grandjean, 1953											+				
Astegistidae Balogh 1961															
Cultroribula sp.			+			+									
Ceratoppiidae Kunst, 1971															
Ceratoppia bipilis (Hermann, 1804)	+			+		+		+	+	+	+	+	+	+	+
Liacaridae Sellnick, 1928															
Adoristes ovatus poppei (Oudemans, 1906)	+					+						+		+	
Xenillidae Woolley and Higgins, 1966															
Xenillus tegeocranus (Hermann, 1804)	+	+	+		+	+	+					+			

TABLE 2 (Continued)

	ASH				OAK							SCOTS PINE				
	Ballykilcavan	**Donadea**	**St. John's Wood**	**Killagh**	**Ross Island**	**Abbeyleix**	**Kilmacrea Wood**	**Raheen**	**Tomie's Wood**	**Union Wood**	**Ballygawley**	**Ballymanus**	**Bansha**	**Brittas**	**Torc**
Eremaeidae Oudemans, 1900															
Euremaeus oblongus Koch, 1835	+		+	+	+	+	+	+	+	+	+	+		+	+
Tricheremaeus sp.						+		+							
Caleremaeidae Grandjean, 1965															
Caleremaeus monilipes (Michael, 1882)					+	+			+	+			+		
Oribellidae Kunst, 1971															
Pantelozetes paolii (Oudemans, 1913)			+												
Thyrisomidae Grandjean, 1953															
Banksinoma lanceolata (Michael, 1885)						+	+		+	+	+				
Oppiidae Sellnick, 1937															
Multioppia neglecta Pérez-Íñigo, 1969						+									
Ramusella (*I.*) *elliptica* (Berlese, 1908)			+								+				
Medioppia obsoleta (Paoli, 1908)		+						+							
Medioppia subpectinata (Oudemans, 1900)	+	+				+	+	+	+	+	+		+	+	+
Serratoppia serrata (Mihelčič,1956)										+				+	
Dissohrina ornata (Oudemans, 1900)	+	+	+	+	+	+	+	+	+	+		+	+	+	
Lauroppia fallax (Paoli, 1908)		+			+	+		+	+	+				+	
Lauroppia tenuipectinata Subías and Rodríguez, 1988					+	+			+			+			
Moritzoppia keilbachi (Moritz, 1969)						+			+	+					
Moritzoppia oreia Colloff and Seyd, 1991			+		+	+	+	+	+	+	+	+	+		
Moritzoppia unicarinata unicarinata (Paoli, 1908)			+		+	+			+	+	+	+			
Moritzoppia u. clavigera (Hammer, 1952)					+	+	+	+	+	+	+			+	
Moritzoppia neerlandica (Oudemans, 1900)						+			+	+				+	
Oppiella (*O.*) *nova* (Oudemans, 1902)	+			+		+	+	+	+		+		+	+	+
Quadroppiidae Balogh, 1983															
Quadroppia (*C.*) *monstruosa* Hammer, 1979									+						
Quadroppia (*C.*) *pseudocircumita* Minguez *et al.*, 1985			+						+	+		+			
Quadroppia (*Q.*) *quadricarinata* (Michael, 1885)			+		+	+		+	+	+	+			+	

TABLE 2 (Continued)

	ASH					OAK							SCOTS PINE				
	Ballykilcavan	Donadea	St. John's Wood	Killagh	Ross Island	Abbeyleix	Kilmacrea Wood	Raheen	Tomie's Wood	Union Wood	Ballygawley	Ballymanus	Bansha	Brittas	Torc
Suctobelbidae Jacot, 1938															
Suctobelba trigona (Michael, 1888)								+	+	+				+	
Suctobelbella (*S.*) *acutidens* Forsslund, 1941				+			+		+			+			
Suctobelbella (*S.*) *acutidens sarekensis* Forsslund, 1941															
Suctobelbella (*S.*) *longicuspis* Jacot, 1937	+								+		+				
Suctobelbella (*S.*) *subcornigera* (Forsslund, 1941)			+	+		+		+	+	+	+	+			
Carabodidae Koch, 1837															
Carabodes (*C.*) *affinis* Berlese, 1913					+	+		+	+	+	+				
Carabodes (*C.*) *coriaceus* Koch, 1835						+								+	
Carabodes (*C.*) *labyrinthicus* (Michael, 1879)						+		+					+	+	
Carabodes (*C.*) *marginatus* (Michael, 1884)						+			+						
Carabodes (*C.*) *ornatus* Štorkán, 1925						+									
Carabodes (*K.*) *willmanni* Bernini, 1975						+			+	+	+				
Odontocepheus elongatus (Michael, 1879)	+				+	+	+		+	+	+	+		+	+
Tectocepheidae Grandjean, 1954															
Tectocepheus minor Berlese, 1903				+		+			+					+	
Tectocepheus velatus (Michael, 1880)				+		+			+	+			+	+	+
Micreremidae Grandjean, 1954															
Micreremaeus brevipes (Michael, 1888)	+		+		+		+		+			+	+		+
Licneremaeidae Grandjean, 1931															
Licneremaeus licnophorus (Michael, 1882)			+			+		+	+	+		+			
Phenopelopidae Petrunkevitch, 1955															
Eupelops acromios (Hermann, 1804)	+						+	+			+	+			
Eupelops plicatus (Koch, 1835)											+				

TABLE 2 (Continued)

	ASH					OAK					SCOTS PINE				
	Ballykilcavan	Donadea	St. John's Wood	Killagh	Ross Island	Abbeyleix	Kilmacrea Wood	Raheen	Tomie's Wood	Union Wood	Ballygawley	Ballymanus	Bansha	Brittas	Torc
Achipteriidae Thor, 1929															
Achipteria (*A.*) *acuta* Berlese, 1908	+		+			+		+	+	+	+	+		+	+
Achipteria (*A.*) *coleoptrata* (Linnaeus, 1758)					+										
Campachipteria petiti Travé, 1960	+		+		+					+	+				+
Parachipteria punctata (Nicolet, 1855)	+			+	+	+	+	+	+	+	+	+			+
Oribatellidae Jacot, 1925															
Ophidiotrichus tectus (Michael, 1884)									+					+	
Oribatella (*O.*) *quadricornuta* (Michael, 1880)								+						+	
Ceratozetidae Jacot, 1925															
Ceratozetes peritus Grandjean, 1951	+	+		+		+	+	+	+			+			
Edwarzetes edwarsi (Nicolet, 1855)											+				
Euzetes globulus (Nicolet, 1855)		+						+			+			+	+
Melanozetes mollicomus (Koch, 1839)			+	+	+			+	+	+	+	+	+		+
Sphaerozetes piriformis (Nicolet, 1855)	+		+	+	+	+		+	+	+	+				
Chamobatidae Thor, 1937															
Chamobates cuspidatus (Michael, 1884)			+	+			+	+	+	+		+			+
Chamobates schuetzi (Oudemans, 1902)	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Humerobatidae Grandjean, 1970															
Diapterobates humeralis (Hermann, 1804)															
Humerobates rostrollamellatus Grandjean, 1936	+				+										
Punctoribatidae Thor, 1937															
Minunthozetes (*M*) *semirufus* (Koch, 1841)															+
Punctoribates (*P.*) *punctum* (Koch, 1839)															
Oribatulidae Thor, 1929															
Oribatula tibialis (Nicolet, 1855)						+									
Zygoribatula exilis (Nicolet, 1855)	+	+	+	+	+	+	+	+	+		+	+	+	+	+
Phauloppia lucorum (Koch, 1841)	+	+	+	+	+	+	+	+	+	+	+		+	+	+
Phauloppia rauschenensis (Sellnick, 1908)											+	+			

TABLE 2 (Continued)

	ASH					OAK					SCOTS PINE					
	Ballykilcavan	Donadea	St. John's Wood	Killagh	Ross Island	Abbeyleix	Kilmacrea Wood	Raheen	Tomie's Wood	Union Wood	Ballygawley	Ballymanus	Bansha	Brittas	Torc
Galumnidae Jacot, 1925															
Acrogalumna longipluma (Berlese, 1904)						+			+						
Mesostigmata															
Gamasina															
Macrochelidae v. Vitzhum, 1930															
Geholaspis longispinosus (Kramer, 1876)									+					+	
Geholaspis mandibularis (Berlese, 1904)											+				
Macrocheles submotus Falconer, 1924	+	+						+		+	+	+		+	
Pachylaelapidae v. Vitzhum, 1931															
Pachylaelaps longisetis (Halbert, 1915)							+								+
Laelapidae Trägardh, 1908															
Hypoaspis nr *oblonga* (Halbert)						+		+	+		+				+
Amerosiidae Evans, 1963															
Epicriopsis horridus (Kramer, 1876)									+						
Zerconidae Berlese, 1892															
Zercon curryii Moraza *et al*., 2009			+		+	+		+	+	+	+				
Zercon darai Moraza, 2009	+		+	+		+		+	+	+			+		
Zercon hibernia Moraza *et al*., 2009		+	+		+		+			+	+		+	+	+
Zercon triangularis (Koch, 1836)						+					+				
Zercon zelawaiensis (Sellnick, 1944)							+		+	+				+	+
Rhodocaridae Oudemans, 1907															
Rhodacarus roseus (Oudemans, 1902)			+											+	
Parasitidae Oudemans, 1901															
Holoparasitus inornatus (Berlese, 1906)			+			+	+	+	+	+	+	+		+	
Holoparasitus stramenti Karg, 1971			+			+						+		+	
Leptogamasus obesus (Holzmann, 1969)															
Lysigamasus celticus Bhattacharyya, 1963			+					+				+		+	
Lysigamasus misellus (Berlese, 1903)									+						
Lysigamasus runciger (Berlese, 1904)															

TABLE 2 (Continued)

	ASH				OAK						SCOTS PINE					
	Ballykilcavan	Donadea	St. John's Wood	Killagh	Ross Island	Abbeyleix	Kilmacrea Wood	Raheen	Tomie's Wood	Union Wood	Ballygawley	Ballymanus	Bansha	Brittas	Torc
Paragamasus diversus (Halbert, 1915)					+	+			+	+					
Paragamasus robustus (Oudemans, 1902)						+						+			
Paragamasus similis (Willmann, 1953)						+	+		+	+					
Pergamasus crassipes Linnaeus, 1758					+	+		+	+	+	+	+		+	+
Pergamasus septentrionalis Oudemans, 1902			+												
Veigaiidae Oudemans, 1939															
Veigaia cerva (Kramer, 1876)					+				+		+			+	
Veigaia kochi Trägårdh, 1910						+					+				
Veigaia nemorensis (Koch, 1839)		+												+	
Uropodida															
Cilliba cassidea (Hermann, 1804)	+		+				+		+		+		+	+	+
Dinychus perforatus Kramer, 1886					+				+						
Uropoda minima Kramer, 1882						+	+			+	+			+	
Trachytes aegrota (Koch, 1841)											+	+	+		
Trachytes minima (Trägårdh, 1910)										+					
Uropoda orbicularis (Muller, 1776)						+			+						

TABLE 2 (Continued)

	SITKA					SITKA 2nd				
	Cloonagh	Derrybrien	Mountain	Dooary	Moneyteige	Ballygawley	North	Bohatch	Kinnity	Stranahely
ORIBATIDA										
ENARTHRONOTA Grandjean, 1947										
Hypochthoniidae Berlese, 1910										
Hypochtonius rufulus Koch, 1835							+			
Brachychthoniidae Thor, 1934										
Liochthonius (*L.*) *brevis* (Michael, 1888)					+					+
Brachychthonius zelawaiensis Sellnick, 1928										+
MIXONOMATA Grandjean, 1969										
Euphthiracaridae Jacot, 1930										
Acrotritia duplicata (Grandjean, 1953)			+							+
Phthiracaridae Perty, 1841										
Atropacarus wandae (Niedbała, 1981)										
Phthiracarus (*P.*) *affinis* (Hull, 1914)		+	+	+	+	+	+	+	+	+
Phthiracarus (*P.*) *laevigatus* (Koch, 1841)		+						+		
Phthiracarus (*A.*) *anonymus* Grandjean, 1933	+							+		+
Phthiracarus (*A.*) *bryobius* Jacot, 1930										
Phthiracarus (*A.*) *montanus* Pérez-Iñigo, 1969					+	+				+
Steganacarus (*S.*) *magnus* (Nicolet, 1855)	+		+		+	+				+
Steganacarus (S.) michaeli Bernini and Avanzati, 1987	+				+	+				+
HOLOSOMATA Grandjean, 1960										
Nothridae Berlese, 1896										
Nothrus biciliatus Koch, 1841 "sp. inq."	+					+				
Nothrus palustris Koch, 1839										
Nothrus pratensis Sellnick, 1928										
Nothrus silvestris Nicolet, 1855							+			+

TABLE 2 (Continued)

	SITKA					SITKA 2nd				
	Cloonagh	Derrybrien	Mountain	Dooary	Moneyteige	Ballygawley	North	Bohatch	Kinnitty	Stranahely
Crotoniidae Thorell, 1876										
Camisia segnis (Hermann, 1804)	+		+	+	+	+	+		+	+
Camisia spinifer (Koch, 1835)			+				+			
Heminothrus (*P.*) *peltifer* (Koch, 1839)		+	+			+	+		+	+
Nanhermanniidae Sellnick, 1928										
Nanhermannia (*N.*) *dorsalis* (Banks, 1896)	+	+	+			+	+			+
Nanhermannia (*N.*) *nana* (Nicolet, 1855)										+
Hermanniidae Sellnick, 1928										
Hermannia (*H.*) *gibba* (Koch, 1839)	+		+		+	+	+			
BRACHYPYLINA Hull, 1918										
Damaeidae Berlese, 1896										
Belba (*B.*) nr *corynopus* (Hermann, 1804)										
Damaeus (*D.*) nr *maximus* Mihelčič, 1957										
Damaeus (*P.*) *clavipes* (Hermann, 1804)		+	+	+	+	+		+		+
Damaeus (*S.*) nr *setiger* (Kulczynski, 1902)										
Dameobelba minutissima (Sellnick, 1929)										
Porobelba spinosa (Sellnick, 1920)		+			+	+				
Compactozetidae Luxton, 1988										
Cepheus latus Koch, 1835	+	+	+			+		+		+
Ommatocepheus ocellatus (Michael, 1882)		+					+			
Tritegeus bisulcatus Grandjean, 1953						+	+			
Astegistidae Balogh 1961										
Cultroribula sp.										
Ceratoppiidae Kunst, 1971										
Ceratoppia bipilis (Hermann, 1804)	+	+	+	+				+	+	+
Liacaridae Sellnick, 1928										
Adoristes ovatus poppei (Oudemans, 1906)		+	+		+		+	+		+
Xenillidae Woolley and Higgins, 1966										
Xenillus tegeocranus (Hermann, 1804)						+				

TABLE 2 (Continued)

	SITKA					SITKA 2nd				
	Cloonagh	Derrybrien	Mountain	Dooary	Moneyteige	Ballygawley	North	Bohatch	Kinnitty	Stranahely
Eremaeidae Oudemans, 1900										
Euremaeus oblongus Koch, 1835	+	+	+	+		+		+		+
Tricheremaeus sp.										
Caleremaeidae Grandjean, 1965										
Caleremaeus monilipes (Michael, 1882)	+									+
Oribellidae Kunst, 1971										
Pantelozetes paolii (Oudemans, 1913)										
Thyrisomidae Grandjean, 1953										
Banksinoma lanceolata (Michael, 1885)	+				+		+	+		+
Oppiidae Sellnick, 1937										
Multioppia neglecta Pérez-Íñigo, 1969										
Ramusella (*I.*) *elliptica* (Berlese, 1908)									+	
Medioppia obsoleta (Paoli, 1908)										+
Medioppia subpectinata (Oudemans, 1900)	+	+	+	+	+		+	+	+	+
Serratoppia serrata (Mihelčič,1956)										+
Dissohrina ornata (Oudemans, 1900)		+	+		+		+	+	+	+
Lauroppia fallax (Paoli, 1908)										
Lauroppia tenuipectinata Subías and Rodríguez, 1988					+					
Moritzoppia keilbachi (Moritz, 1969)										
Moritzoppia oreia Colloff and Seyd, 1991	+						+			+
Moritzoppia unicarinata unicarinata. (Paoli, 1908)										+
Moritzoppia u. clavigera (Hammer, 1952)		+				+				+
Moritzoppia neerlandica (Oudemans, 1900)						+			+	
Oppiella (*O.*) *nova* (Oudemans, 1902)	+	+	+		+	+	+	+	+	+
Quadroppiidae Balogh, 1983										
Quadroppia (*C.*) *monstruosa* Hammer, 1979										
Quadroppia (*C.*) *pseudocircumita* Minguez *et al.*, 1985										+
Quadroppia (*Q.*) *quadricarinata* (Michael, 1885)			+							+

TABLE 2 (Continued)

	SITKA				SITKA 2nd					
	Cloonagh	**Derrybrien**	**Mountain**	**Dooary**	**Moneyteige**	**Ballygawley**	**North**	**Bohatch**	**Kinnity**	**Stranahely**
Suctobelbidae Jacot, 1938										
Suctobelba trigona (Michael, 1888)	+						+			+
Suctobelbella (*S.*) *acutidens* Forsslund, 1941					+		+		+	+
Suctobelbella (*S.*) *acutidens sarekensis* Forsslund, 1941										+
Suctobelbella (*S.*) *longicuspis* Jacot, 1937			+							
Suctobelbella (*S.*) *subcornigera* (Forsslund, 1941)									+	+
Carabodidae Koch, 1837										
Carabodes (*C.*) *affinis* Berlese, 1913		+								+
Carabodes (*C.*) *coriaceus* Koch, 1835										
Carabodes (*C.*) *labyrinthicus* (Michael, 1879)										
Carabodes (*C.*) *marginatus* (Michael, 1884)										
Carabodes (*C.*) *ornatus* Štorkán, 1925										
Carabodes (K.) willmanni Bernini, 1975			+			+				
Odontocepheus elongatus (Michael, 1879)		+				+	+			+
Tectocepheidae Grandjean, 1954										
Tectocepheus minor Berlese, 1903		+	+							
Tectocepheus velatus (Michael, 1880)		+	+	+			+			+
Micreremidae Grandjean, 1954										
Micreremaeus brevipes (Michael, 1888)										
Licneremaeidae Grandjean, 1931										
Licneremaeus licnophorus (Michael,1882)										
Phenopelopidae Petrunkevitch, 1955										
Eupelops acromios (Hermann, 1804)		+		+	+	+	+		+	+
Eupelops plicatus (Koch, 1835)						+				

TABLE 2 (Continued)

	SITKA				SITKA 2nd					
	Cloonagh	**Derrybrien**	**Mountain**	**Dooary**	**Moneyteige**	**Ballygawley**	**North**	**Bohatch**	**Kinnitty**	**Stranahely**
Achipteriidae Thor, 1929										
Achipteria (*A.*) *acuta* Berlese, 1908		+	+	+		+				
Achipteria (*A.*) *coleoptrata* (Linnaeus, 1758)										
Campachipteria petiti Travé, 1960		+								
Parachipteria punctata (Nicolet, 1855)	+	+	+	+		+	+			+
Oribatellidae Jacot, 1925										
Ophidiotrichus tectus (Michael, 1884)			+							+
Oribatella (*O.*) *quadricornuta* (Michael, 1880)					+		+		+	+
Ceratozetidae Jacot, 1925										
Ceratozetes peritus Grandjean, 1951								+		
Edwarzetes edwarsi (Nicolet, 1855)			+							
Euzetes globulus (Nicolet, 1855)						+				
Melanozetes mollicomus (Koch, 1839)	+					+				+
Sphaerozetes piriformis (Nicolet, 1855)		+						+		+
Chamobatidae Thor, 1937										
Chamobates cuspidatus (Michael, 1884)							+	+		+
Chamobates schuetzi (Oudemans, 1902)	+	+	+	+	+	+		+	+	+
Humerobatidae Grandjean, 1970										
Diapterobates humeralis (Hermann, 1804)		+			+	+				+
Humerobates rostrollamellatus Grandjean, 1936										
Punctoribatidae Thor, 1937										
Minunthozetes (*M.*) *semirufus* (Koch, 1841)										
Punctoribates (*P.*) *punctum* (Koch, 1839)					+					
Oribatulidae Thor, 1929										
Oribatula tibialis (Nicolet, 1855)							+			
Zygoribatula exilis (Nicolet, 1855)	+		+	+				+	+	+
Phauloppia lucorum (Koch, 1841)	+		+	+	+	+		+		+
Phauloppia rauschenensis (Sellnick, 1908)										

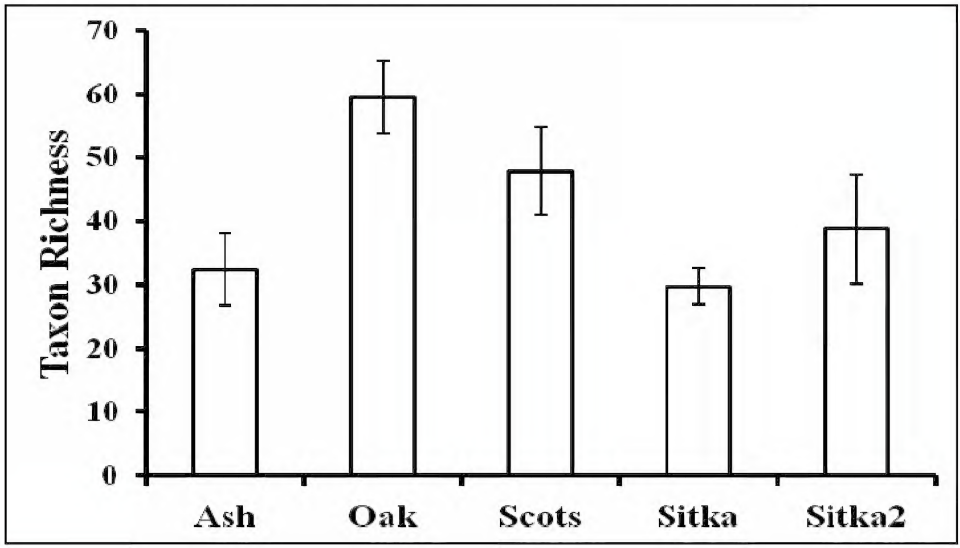
TABLE 2 (Continued)

	SITKA					SITKA 2nd				
	Cloonagh	Derrybrien	Mountain	Dooary	Moneyteige	Ballygawley	North	Bohatch	Kinnitty	Stranahely
Galumnidae Jacot, 1925										
Acrogalumna longipluma (Berlese, 1904)										
Mesostigmata										
Gamasina										
Macrochelidae v. Vitzhum, 1930										
Geholaspis longispinosus (Kramer, 1876)										
Geholaspis mandibularis (Berlese, 1904)	+					+				
Macrocheles submotus Falconer, 1924										
Pachylaelapidae v. Vitzhum, 1931										
Pachylaelaps longisetis (Halbert, 1915)					+					
Laelapidae Trägardh, 1908										
Hypoaspis nr *oblonga* (Halbert)									+	
Amerosiidae Evans, 1963										
Epicriopsis horridus (Kramer, 1876)										
Zerconidae Berlese, 1892										
Zercon curryii Moraza *et al*., 2009										
Zercon darai Moraza, 2009									+	
Zercon hibernia Moraza *et al*., 2009		+	+	+		+			+	+
Zercon triangularis (Koch, 1836)										+
Zercon zelawaiensis (Sellnick, 1944)			+		+		+		+	+
Rhodocaridae Oudemans, 1907										
Rhodacarus roseus (Oudemans, 1902)										
Parasitidae Oudemans, 1901										
Holoparasitus inornatus (Berlese, 1906)	+	+				+				+
Holoparasitus stramenti Karg, 1971				+						
Leptogamasus obesus (Holzmann, 1969)										+
Lysigamasus celticus Bhattacharyya, 1963						+	+			+
Lysigamasus misellus (Berlese, 1903)										
Lysigamasus runciger (Berlese, 1904)					+	+				+

TABLE 2 (Continued)

	SITKA					SITKA 2nd				
	Cloonagh	Derrybrien	Mountain	Dooary	Moneyteige	Ballygawley	North	Bohatch	Kinnitty	Stranahely
Paragamasus diversus (Halbert, 1915)		+					+			
Paragamasus robustus (Oudemans, 1902)		+			+				+	
Paragamasus similis (Willmann, 1953)										+
Pergamasus crassipes Linnaeus, 1758	+	+		+	+	+				
Pergamasus septentrionalis Oudemans, 1902								+		+
Veigaiidae Oudemans, 1939										
Veigaia cerva (Kramer, 1876)		+								+
Veigaia kochi Trägårdh, 1910				+						+
Veigaia nemorensis (Koch, 1839)	+								+	+
Uropodida										
Cilliba cassidea (Hermann, 1804)						+			+	+
Dinychus perforatus Kramer, 1886										
Uropoda minima Kramer, 1882	+				+		+	+		+
Trachytes aegrota (Koch, 1841)		+		+				+		
Trachytes minima (Trägårdh, 1910)										+
Uropoda orbicularis (Muller, 1776)										+

FIGURE 1. Richness of taxa occurring in different forest types (mean ± s.e).



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ADDITIONS, DELETIONS AND CORRECTIONS TO *AN ANNOTATED CHECKLIST OF THE IRISH BUTTERFLIES AND MOTHS (LEPIDOPTERA)* WITH A CONCISE CHECKLIST OF IRISH SPECIES AND *ELACHISTA BIATOMELLA* (STAINTON, 1848) NEW TO IRELAND

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Abstract

Additions, deletions and corrections are made to the Irish checklist of butterflies and moths (Lepidoptera). *Elachista biatomella* (Stainton, 1848) is added to the Irish list. The total number of confirmed Irish species of Lepidoptera now stands at 1480.

Key words: Lepidoptera, additions, deletions, corrections, Irish list, *Elachista biatomella*

Introduction

Bond, Nash and O'Connor (2006) provided a checklist of the Irish Lepidoptera. Since its publication, many new discoveries have been made and are reported here. In addition, several deletions have been made. A concise and updated checklist is provided. The following abbreviations are used in the text: BM(NH) – The Natural History Museum, London; NMINH – National Museum of Ireland, Natural History, Dublin. The total number of confirmed Irish species now stands at 1480, an addition of 68 since Bond *et al.* (2006).

Taxonomic arrangement

As a result of recent systematic research, it has been necessary to replace the arrangement familiar to British and Irish Lepidopterists by the Fauna Europaea [FE] system used by Karsholt

and Razowski, which is widely used in continental Europe. While the FE species numbering system is also adopted in this checklist, in order to assist those familiar with the Bradley and Fletcher numbering system, the FE species numbers are followed, in square brackets, by the Bradley and Fletcher numbers. The FE sequence is strictly followed throughout, except in a few cases where newer generic combinations would have meant splitting families or genera, e.g. in the families Oecophoridae and Elachistidae. The former families Lymantridae and Arctiidae have been combined into the Erebidae, which follows the Noctuidae and the Nolidae respectively, the latter of these including some species previously placed in the Noctuidae.

Species added to the Irish Lepidoptera list since Bond *et al.* (2006)

293 [39]. *Ectoedemia heringi* (Toll, 1934)

Ectoedemia heringi was recorded from St John's Wood, Co. Roscommon, by the senior author on 12 October 2010, and reported as new to Ireland in Langmaid and Young (2011). There is, however, an earlier overlooked record: Heal (unpublished) in his "Miscellaneous notes and observations on the Microlepidoptera of Ireland", writes on p. 81 of finding mines, some tenanted, of this species (as *E. quercifoliae* (Toll, 1943) and *E. subbimaculella* (Haworth, 1828)) at Dixon Park, near Dunmurry, Co. Antrim, in November 1979, and provides a distinguishing feature (larval head colour) for the two species.

1111 [285]. *Caloptilia azaleella* (Brants, 1913)

The Azalea Leaf Miner *Caloptilia azaleella* was recorded in south Belfast, Co. Antrim, on 1 June 2002 (Higgott and Mackie, 2003; Langmaid and Young, 2003).

1129 [284]. *Caloptilia rufipennella* (Hübner, 1796)

Caloptilia rufipennella was recorded from Belfast, Co. Down, on 17 July 2003 by J. B. Higgott (Langmaid and Young, 2006). More recent records are: Gormanston, Co. Meath, 25 August 2007 and 25 July 2001 (E. O'Donnell); Tramore, Co. Waterford, 25 October 2005 (Bryant); Dublin City (National Botanic Gardens), 15 August 2009 and Cork City, 11 August 2011 (the last two by the senior author).

1403 [439]. *Swammerdamia compunctella* Herrich-Schäffer, 1855

Swammerdamia compunctella was recorded in south Belfast, Co. Antrim, on 2 June 2002, as the first Irish record (Higgott and Mackie, 2003; Langmaid and Young, 2003). Older records have, however, been found in collections: a female specimen under "*Swammerdamia caesiella*" labelled "Armagh 27/6/[18]89" was found by the senior author in the Johnson collection in NMINH, and its identity determined by dissection; a 1980 specimen from Loughgall, Co. Armagh has been found in the Faulkner collection; specimens from Brackagh and Aughinlig, both also Co. Armagh, dated 1998 and 1999 respectively, have been found in the Murphy collection (male dissected by the senior author). More recently the senior author took a specimen at Lullymore, Co. Kildare on 8 July 2006.

1442 [409a]. *Argyresthia trifasciata* Staudinger, 1871

This species was taken at Maynooth, Co. Kildare, on 1 June 2006, and has subsequently been taken there annually from mid May until the end of June (Strickland, pers. comm.). Elsewhere, it has been taken in 2010 at Finaghy, Co. Antrim (Mellon, pers. comm.); Dundalk, Co. Louth in 2010, May 2011 and in 2012 by D. Hodgers <http:// pets.groups.yahoo.com/group/MothsIreland/message/7320>; Sallins, Co. Kildare, May 2011, G. de Jong <http://pets.groups.yahoo.com/group/MothsIreland/ message/05858>; near Maghera, Co. Derry in late May, 2012 (C. Bertrand, pers. comm.) <<http:// pets. groups.yahoo.com/group/ MothsIreland/message/8977>, and by the senior author in Cork City on 15 May 2012.

1447a [409b]. *Argyresthia cupressella* Walsingham, 1890

Argyresthia cupressella was recorded from Belfast, Co. Antrim, by J. B. Higgott, on 16 July 2003 (Langmaid and Young, 2004; Bond, 2009). More recently it has also been recorded from Maynooth, Co. Kildare (Strickland, pers. comm.).

1572 [476]. *Acrolepia autumnitella* Curtis, 1838

Adults of *Acrolepia autumnitella* were reported from Maynooth, Co. Kildare, in May and July 2009. Subsequently blotch mines belonging to the species were found on bittersweet nightshade, *Solanum dulcamara*, in Cork City in August 2009 (Langmaid and Young, 2010;

Strickland and Bond, 2011). The species was also recorded by E. O'Donnell at Stamullen, Co. Meath on 16 April 2011.

1668 [666]. *Semioscopis avellanella* (Hübner, [1793])

Semioscopis avellanella was recorded from Cratloe Wood, Co. Clare, by K. Hannan on 18 March 2008. The identity of the specimen, a female, was confirmed by dissection by the senior author. The specimen is in the NMINH collections (Reg. No. NMINH 2008: 255). This record is shown on a map by Tyner (2011a). Kane (1901) lists a record from Wicklow by G. V. Hart, but Beirne (1941) considered this record to be unreliable, citing "the foodplant *Tilia parvifolia* is non-indigenous". *S. avellanella* is now known to feed on a variety of deciduous tree species.

1670 [667]. *Semioscopis steinkellneriana* ([Denis and Schiffermüller], 1775)

Semioscopis steinkellneriana was recorded from Ballynahone Bog and Drumlamph Wood, Co. Derry, in 2010 (Leonard, 2011; Langmaid and Young, 2011).

1874 [595]. *Elachista biatomella* (Stainton, 1848) New to Ireland

A male specimen in the BM(NH) Collections taken by Bradley at Glengarriff, West Cork in June 1952 has recently been identified as *Elachista biatomella* following dissection by the senior author.

2048 [903]. *Chrysoclista linneella* (Clerck, 1759)

A specimen was photographed at Marina, Cork City, May 2011 by John O'Sullivan. This species was recorded from Holywood, Co. Down (Hogan, 1855), and was also listed from an unstated locality in Haliday's unpublished manuscript, but the records were considered doubtful by Beirne (1941), and the species was omitted in Bond (1995) and Bond *et al.* (2006).

2049 [902]. *Chrysoclista lathamella* T. Fletcher, 1936

Chrysoclista lathamella was recorded from Cronykeery, Co. Wicklow, by A. Tyner on 18 June 2005 (Langmaid and Young, 2006).

2883 [885]. *Mompha conturbatella* (Hübner, [1819])

A female *Mompha conturbatella* was taken at Peatlands Park, Co. Armagh, by K. Murphy on 9 July 2001, det. by the senior author (Bond, 2009). Further recent records include: two sites in Co. Louth: four specimens at Mullaghatin, Cooley Mountains, 28 June to 6 July 2011, and

one at Stormanstown Bog, Ardee on 10 July 2012 (D. Hodgers); Girley Bog, Co. Meath on 27 June 2012 (E. O'Donnell), and Lullymore West and Maynooth, both Co. Kildare, July 2011 (P. Strickland).

2885 [887]. *Mompha lacteella* (Stephens, 1834)

A male was taken at Rathgar, Dublin City on 26 June 1971 by M. Jeffares. The specimen has recently been dissected by the senior author. A 19th century record, possibly from Belfast, referred to by Hogan (1855) was considered doubtful by Beirne (1941).

2904a [874]. *Blastobasis lacticolella* Rebel, 1940

Blastobasis lacticolella was recorded from Cronykeery, Co. Wicklow and Tyrella, Co. Down (as *Blastbasis decolorella* (Wollaston)) (Langmaid and Young, 2003). This spreading species is currently known from a number of sites in eastern Ireland, extending from Co. Antrim southwards to Co. Waterford.

3095 [908]. *Sorhagenia rhamniella* (Zeller, 1839)

Sorhagenia rhamniella was recorded from Coolorta, Co. Clare, on 5 August 2006 (Clancy, 2007a). The record is also given in Langmaid and Young (2007). Records of *Sorhagenia* were previously considered to belong to one species, *S. lophyrella* (Douglas). This species complex was later shown to consist of three species. Bradley's records as "*lophyrella*" are indeed of that species. In addition, a much earlier (1888) specimen of *S. lophyrella* labelled: "Athlone 28-VII-88" was recently found by the senior author in the JJFX King Collection in Glasgow. King's notes indicate that the specimen was taken at Yewpoint, Co. Roscommon, about 7km NNW of Athlone.

3327 [737]. *Monochroa palustrellus* (Douglas, 1850)

Monochroa palustrellus was recorded from Leagh South near Kinvarra, Co. Galway, on 5 August 2006 (Clancy, 2007a). The record is also given in Langmaid and Young (2007).

3400 [758]. *Recurvaria leucatella* (Clerck, 1759)

A female of this species was taken by E. O'Donnell on 23 July 2011 at Monaleen, in the Burren, Co. Clare. The specimen has been deposited in the NMINH collections (Reg. No. 2011.39.1).

3419 [774]. *Teleiodes luculella* (Hübner, [1813])

A male *Teleiodes luculella* was recorded from Cronykeery, Co. Wicklow, by A. Tyner on 10 July 2003 (Langmaid and Young, 2004). The specimen is in the NMINH collections (Reg. No. NMINH 2003: 77). Further specimens have been recorded from this site in 2007, 2010 and 2012. The species has also been recorded from Killarney National Park, North Kerry in 2009 (P. Chapman), and from Killoughrum, Co. Wexford in 2010 and 2012 (M. O'Donnell).

3648 [825]. *Phthorimaea operculella* (Zeller, 1873)

The Potato Tuber Moth, *Phthorimaea operculella*, was recorded from Tramore, Co. Waterford, at a light-trap, on 28 September 2006 (Bryant, 2009b; Langmaid and Young, 2009b). The determination of the specimen, a female, was confirmed by the senior author by dissection. The specimen is in the NMINH collections (Reg. No. NMINH 2008: 25).

3795 [850]. *Syncopacma polychromella* (Rebel, 1902)

This migrant species was recorded from Tramore, Co. Waterford, by T. Bryant on 30 May 2009 (Bryant, 2009c; Bryant and Walsh, 2010; Clancy, 2012). The specimen, a male, is in the NMINH collections (Reg. No. NMINH 2009: 54).

4380 [1059]. *Acleris abietana* (Hübner, 1822)

This species was found on 16 and 20 April 2010, and 30 April 2011 at Mountstewart, Co. Down, by David McCormick. The last of these, a female, was dissected by the senior author.

4385a [1062a]. *Acleris effractana* (Hübner, [1799])

Acleris effractana was recorded from the west of Ireland by Karsholt *et al.* (2005). Their record was based on two specimens, found by the senior author in the Sheldon Collection in BM(NH) labelled "Co. Clare Aug 1929 WGS". Prior to Karsholt *et al.* (2009), this species had been confused with the widespread *A. emargana* (Fabricius). There is also a recent record of a male taken by the senior author at Einagh, in the west of Co. Clare, 2 August 2005. The identity of this specimen was confirmed by dissection.

4482 [1018]. *Cnephasia communana* (Herrich-Schäffer, 1851)

Cnephasia communana was recorded from Copeland Island, Co. Down, by K. Murphy on 16 June 2003 (Bond, 2009). The specimen, a female, was dissected and identified by J. Clifton.

4660 [1112a]. *Bactra venosana* (Zeller, 1847)

A male of this migrant species, which has not been recorded from Great Britain, was taken at Tramore, Co. Waterford on 22 September 2006 (dissected by the senior author) (Bryant and Bond, 2008; Langmaid and Young, 2007a; Clancy, 2008a). The specimen has been deposited in NMINH (Reg. No. 2008.21).

4669 [1101]. *Endothenia ustulana* (Haworth, 1811)

Three specimens taken at Cappoquin, Co. Waterford, were found by the senior author in the J. J. F. X. King collection, Hunterian Museum, Glasgow. They are dated July to August 1902 (Langmaid and Young, 2010).

4793 [1108]. *Lobesia abscisana* (Doubleday, 1849)

Lobesia abscisana was recorded from Stamullen, Co. Meath, by E. O'Donnell on 21 July 2009 (Langmaid and Young, 2009b). There have been several subsequent records: Dundalk, Co. Louth, 2010 and 2011 (D. Hodgers); Cronykeery, Co. Wicklow, 2010, 2011 and 2012 (A. Tyner), and Kilmichael Point, Co. Wexford, 2012 (M. O'Donnell).

4866 [1130]. *Epinotia pygmaeana* (Hübner, [1799])

A specimen of *Epinotia pygmaeana* was taken in a coniferous plantation at Ballyguyroe North in the Ballyhoura Mountains, Co. Cork, on 13 April 2009 (Bond, 2010). A further specimen was taken there by the senior author in April 2011.

4948 [1193]. *Eucosma tripoliana* (Barrett, 1880)

Eucosma tripoliana was recorded from Tramore saltmarsh, Co. Waterford, by T. Bryant on 18 August 2006 (Langmaid and Young, 2009b). A specimen was also taken by K. Murphy in 2005, probably at Mill Bay, Co. Down, but the site of capture remains uncertain. More recent records include Dundalk, Co. Louth in 2011 (D. Hodgers), and Little Island, Co. Cork, 26 July 2012 (the senior author). Specimens from all four locations have been dissected by the senior author.

5042 [1207]. *Clavigesta purdeyi* (Durrant, 1911)

The Pine Leaf-Mining Moth, *Clavigesta purdeyi*, was recorded from Tramore, Co. Waterford, on 4 August 2004 (Bryant, 2007b). A record from Barnland, Co. Wexford, by M.

O'Donnell on 5 August 2006 is given as "New to Ireland" by Langmaid and Young (2007).

5066 [1119a]. *Ancylis diminutana* (Haworth, 1811)

A female of this species, dissected by the senior author, was taken at St John's Wood, Co. Roscommon, by the senior author on 18 June 2010 (Langmaid and Young, 2011).

5154 [1262]. *Cydia amplana* (Hübner, [1800])

The first published Irish record of this species is of a specimen taken at Ashford, Co. Wicklow, by Angus Tyner on 11 August 2004 (Clancy, 2007b). Subsequently, a slightly earlier record was published by Clancy (2008a), Langmaid and Young (2009a) and Bryant (2010a). This referred to a male taken at Tramore, Co. Waterford, on 4 August 2004 by T. Bryant. This specimen was dissected by the senior author, and is in the NMINH collections (Reg. No. NMINH 2009: 55).

5181 [1227]. *Pammene giganteana* (Peyerimhoff, 1863)

A female of this gall-feeding species was taken on 7 April 2011 at Gortnamona, near Ballingeary, West Cork by J. Seawright. The specimen was dissected by the senior author.

5184 [1229]. *Pammene albuginana* (Guenée, 1845)

A male was reared "from decaying beech wood with moss" (Heal card index) on 28 May 1976 (dissected by the senior author) (Bond, 2009). This is the specimen that was referred to as possibly being *Pammene herrichiana* in Bond (1995).

5186 [1225]. *Pammene obscurana* (Stephens, 1834)

This species was recorded from Barnland, Co. Wexford on 11 June 2010 by M. O'Donnell. The identity of the specimen, a male, was determined by dissection by the senior author. A further record is: Lullymore, Co. Kildare, 7 May 2011 (P. Strickland).

5200 [1239]. *Pammene ochsenheimeriana* (Lienig and Zeller, 1846)

A male was taken at Rathescar Wood (O028869), Co. Louth, on 1 June 2011 by D. Hodgers. The identity was confirmed by the senior author following dissection; the specimen is held in NMINH (Reg. No. 2011.23.1).

5205 [1237]. *Pammene germmana* (Hübner, [1799])

Pammene germmana was recorded from Aughinlig, Co. Armagh, on 19 June 2009

(Langmaid and Young, 2010). A further specimen, a female dissected by the senior author, was taken by M. O'Donnell, at Killoughrim Forest, Co. Wexford on 26 June 2010; the species was again recorded there in 2011.

5302 [484]. *Epermenia aequidentellus* (E. Hofmann, 1867)

Epermenia aequidentellus was recorded from Tramore Burrow, Co. Waterford, on 16 July 2006 (Bryant, 2009a; Langmaid and Young, 2009b). The specimen, a female, is in the NMINH collections (Reg. No. 2008: 21).

5305 [481]. *Epermenia falciformis* (Haworth, 1828)

A specimen of *Epermenia falciformis* was taken at Brackagh, Co. Armagh, on 19 June 1998 by Kenny Murphy. More recently it has been taken by the same recorder at several other sites in Co. Armagh, and at Derryvore, Co. Fermanagh, 9 July 2005 (Bond, 2009). The species was also recorded at Lullymore, Co. Kildare on 7 July 2006 by M. O'Donnell.

5454 [1492]. *Crombrugghia laetus* (Zeller, 1847)

Crombrugghia laetus was recorded from Tramore, Co. Waterford, on 27 June 2006 (Bryant and Bond, 2010; Clancy, 2011). The record is given under *Oxyptilus laetus* by Langmaid and Young (2010). A second specimen, a female, was recorded by M. O'Donnell at Kilpatrick, Co. Wexford on 27 June 2011. Both specimens were dissected by the senior author.

5459 [1494]. *Capperia britanniodactyla* (Gregson, 1867)

A specimen was taken on 1 July 2007 at Murlough, Co. Down by K. Murphy (det. J. Clifton). Prior to this the only known Irish specimens were about a dozen labelled "Derry" in the BM(NH) (Shaffer, 1971; Hart, 2011). The species was omitted by Bond (1995) and Bond *et al.* (2006).

5652 [1413]. *Hypsopygia costalis* (Fabricius, 1775)

Two specimens of the Gold Triangle, *Hypsopygia costalis*, were record from Cronykeery, Ashford, Co. Wicklow, by A. Tyner, 25 and 28 September 2006 (Langmaid and Young, 2007; Walsh *et al.*, 2009). A further specimen was taken by E. Rolston at Murlough NNR, Co. Down on 13 July 2008.

5658 [1415]. *Hypsopygia glaucinalis* (Linnaeus, 1758)

This species was recorded from Murlough NNR, Co. Down, in August 2012 by A. Crory (per E. Rolston). There are old unconfirmed records of this species from Co. Wicklow (Birchall, 1873; Sinclair, 1879), and from Belfast (Watts, 1894).

***5751 [1441]. *Oncocera semirubella* (Scopoli, 1763)**

This species was recorded (as *Ilythyia semirubella*) from Dursey Island, West Cork by Kane (1901). The record was considered in need of confirmation by Beirne (1941) but is included in Sterling and Parsons (2012).

5848 [1465]. *Nephopterix angustella* (Hübner, 1796)

Nephopterix angustella was recorded from Tramore, Co. Waterford, by T. Bryant on 3 September 2010 (Bryant, 2010b; Langmaid and Young, 2011).

6246 [1298]. *Crambus ericella* (Hübner, [1813])

Crambus ericella was recorded from Glennasheevar (then referred to as Braade), Co. Fermanagh, by M. R. Young in the period 12-14 July 2002 (Langmaid and Young, 2003).

6314 [1316]. *Catoptria falsella* ([Denis and Schiffermüller], 1775)

A male *Catoptria falsella* was taken at Cronykeery, Co. Wicklow, by A. Tyner on 9 July 2005 (Davis, 2006). The specimen is in the NMINH collections (Reg. No. NMINH 2007: 5). Subsequently a number of further specimens have been recorded at this site, and one was recorded at Blackditch, Co. Wicklow on 22 July 2008 (A. Tyner, pers. comm.).

6367 [1324]. *Pediasia aridella* (Thunberg, 1788)

Pediasia aridella was recorded from Tramore, Co Waterford, in June and July 2007 (Bryant, 2009a; Langmaid and Young, 2010). A male taken at actinic light-trap on 8 June 2007 is in the NMINH collections (Reg. No. NMINH 2008: 21). In addition, two specimens were recorded at Kilmichael Point, Co. Wexford on 26 June 2009 by M. O'Donnell.

6499 [1357]. *Evergestis extimalis* (Scopoli, 1763)

Evergestis extimalis was recorded at Cronykeery, Co. Wicklow, by A. Tyner on 24 July 2003 (Clancy and Skinner, 2007). The specimen is in the NMINH collections (Reg. No. NMINH 2003: 78).

6521 [1360]. *Hellula undalis* (Fabricius, 1781)

The Old World Webworm, *Hellula undalis*, was recorded from Tramore, Co. Waterford, on 24 September 2006 (Bryant, 2009b; Langmaid and Young, 2009b). The specimen, a male, is in the NMINH collections (Reg. No. NMINH 2008: 25).

6550 [1393]. *Udea uliginosalis* (Stephens, 1834)

Udea uliginosalis was recorded from close to the summit of Corslieve in the Nephin Beg range, Co. Mayo, at a height of about 550m by J. Cromie on 17 July 2004 (Langmaid and Young, 2007). The specimen was not taken, but a photo is available.

6619 [1369]. *Uresiphita gilvata* (Fabricius, 1794)

Uresiphita gilvata was recorded from Tramore, Co. Waterford, on 18 October 2006 (Langmaid and Young, 2009b); the record is also given in Bryant (2010a). The specimen, a male, was dissected by the senior author, and is now in the NMINH collections (Reg. No. NMINH 2009: 56). Four specimens were recorded from Cape Clear Island, Co. Cork 10-13 October 2010 by E. O'Donnell and P. J. O'Keeffe; one of these, a male, is in NMINH (Reg. No. NMINH 2011:1).

6686 [1403a]. *Duponchelia fovealis* Zeller, 1847

This species was found indoors at Lucan, Co. Dublin on 11 January 2010 by P. Strickland <http:// pets.groups.yahoo.com/group/MothsIreland/message/5287>. A further specimen was taken at a garden light-trap on 1 September 2012 at Finaghy, South Belfast (Co. Antrim) by H. Mellon) <http:// pets.groups.yahoo.com/group/MothsIreland/message/9383>.

6704 [1400]. *Antigastra catalaunalis* (Duponchel, 1833)

Antigastra catalaunalis was recorded from Barnland, Co. Wexford, by M. O'Donnell on 14 October 2005 (Langmaid and Young, 2006). A further specimen was recorded at Cronykeery, Co. Wicklow on 18 October 2005 by A. Tyner. The species was again seen at Barnland, and also at Tramore, Co. Waterford, both on 24 September 2006 (Clancy, 2008).

6819 [1979]. *Mimas tiliae* (Linnaeus, 1758)

The first confirmed Irish record the Lime-hawk Moth is of a specimen recorded from his garden in Drumcondra, Dublin City, on 19 May 2010 by S. Aylward. There are several old,

unconfirmed Irish records in the literature. Note: the species is listed as Irish in Karsholt and Razowski (1996).

6923 [1527]. *Thymelicus lineola* (Ochsenheimer, 1808)

The Essex Skipper, *Thymelicus lineola*, was recorded from Fardystown, Co. Wexford, in August 2006. It has subsequently spread outside the original discovery site (Wilson, Goodwin and Bond, 2009). Originally, it was misidentified as the Small Skipper *Thymelicus sylvestris* (Poda) (Wilson, Goodwin and Bond, 2007).

6924 [1526]. *Thymelicus sylvestris* (Poda, 1761)

The Small Skipper was recorded breeding at a site in Co. Kildare in 2005 (Harding, 2008; Harding and Jacob, in press).

7503 [1646]. *Watsonalla binaria* (Hufnagel, 1767)

The Oak Hook-tip *Watsonalla binaria* was recorded from Carrigmore, Co. Wicklow, by C. Osthoff on 28 July 2008 (Clancy, 2011; Walsh *et al.*, 2011).

7635 [1914]. *Ennomos fuscantaria* (Haworth, 1809)

A specimen of the Dusky Thorn *Ennomos fuscantaria* was taken at light at Cobh, Co. Cork on 30 September 2009 by J. Wilson. An image is available at <http://www.flickr.com/photos/wilsonjim/3968598649/in/set-72157622240561909>.

8072 [1691]. *Scopula emutaria* (Hübner, 1809)

Seven examples of the Rosy Wave *Scopula emutaria* were recorded on 12 July 2005 at a Robinson light-trap at Ballinoulart, Co. Wexford, and the species was subsequently found at other sites on the Wexford coast (O'Donnell, 2007). Five specimens were taken on 5 July 2006 at a 15W actinic light-trap at Tramore Burrow, Co. Waterford by T. Bryant (Bryant and Walsh, 2007).

8610 [1865]. *Chesias rufata* (Fabricius, 1775)

The Broom-tip, *Chesias rufata*, was recorded from Glenealy, Co. Wicklow on 24 May 2003, and from Carrigmore, Co. Wicklow on 5 and 12 July 2003 (M. O'Donnell). Further records are as follows: Rathdrum, Co. Wicklow, May 2004 (D. Dennison and L. Taylor); Lackan Wood, Co. Wexford, 2005, 2006 and 2007 and Barnland, Co. Wexford, 2007 (M. O'Donnell);

Carrigmore, Co. Wicklow, 2006, 2007 and 2008 (C. Osthoff).

8654 [1874]. *Euchoeca nebulata* (Scopoli, 1763)

A specimen of the Dingy Shell *Euchoeca nebulata* was recorded from Blackditch, near Newcastle, Co. Wicklow, by A. Tyner on 26 July 2008 (Clancy, 2011; Walsh *et al*., 2011). This specimen is in the NMINH collections (Reg. No. NMINH 2009: 57). A further specimen was netted by K. Leonard at Ballysallagh, Co. Down on 29 June 2009, and the species was taken at light at three other sites in the north of Co. Down in 2012 (T. Rolston, pers. comm.). In addition, two specimens were trapped at The Raven, Co. Wexford on 30 June 2009 (Tyner, pers. comm.).

8783 [2287]. *Acronicta auricoma* ([Denis and Schiffermüller], 1775)

Clifton (2007) refers to a Cork record of the Scarce Dagger reported in Skinner (2009): Mizen Head (Co. Cork) 30 May 1937.

9368 [2404]. *Heliothis nubigera* (Herrich-Schäffer, 1851)

The Eastern Bordered Straw *Heliothis nubigera* was recorded from Tarmon, Mullet Peninsula, Co. Mayo, by D. Suddaby on 4 June 2006 (Walsh *et al*., 2009).

9461 [2386c]. *Spodoptera cilium* Guenée, 1852

The Dark Mottled Willow *Spodoptera cilium* was recorded from Brownstown Head, Co. Waterford, on 13 September 2008 (Walsh and Bond, 2009; Clancy, 2011).

9531 [2313]. *Enargia paleacea* (Esper, 1788)

The Angle-striped Sallow, *Enargia paleacea*, was recorded from Legatillida, Co. Fermanagh, by V. McLoughlin on 7 August 2002 (Clancy and Skinner, 2006; Thompson and Nelson, 2006).

9562 [2271]. *Tiliacea citrago* (Linnaeus, 1758)

The Orange Sallow was recorded from Cronykeery, Ashford, Co. Wicklow, by A. Tyner on 28 September 2002 and 3 October 2004 (Bond and Gittings, 2008). A specimen was found at light-trap at Finaghy, Co. Antrim on 28 September 2009 by C. Mellon <http:// pets.groups.yahoo.com/group/MothsIreland/message/5082>. The larva was recorded from Donabate, Co. Dublin, on 9 May 2012, and from the Phoenix Park, Co. Dublin on 18 May 2012

(A. Tyner).

9657 [2235]. *Lithophane semibrunnea* (Haworth, 1809)

A single specimen was trapped near Ashford, Co. Wicklow by A. Tyner on 8 April 2004 <http://www.mothsireland.com/specieslist.htm>.

9664 [2240]. *Lithophane leautieri* (Boisduval, 1829)

Blair's Shoulder-knot *Lithophane leautieri* was recorded from near Wicklow town, Co. Wicklow, on 5 October 2002 (O'Donnell, 2003). It was also taken at Cronykeery, Co. Wicklow on 4 November 2002. Since then the species has spread considerably and it is now known from many other sites in eastern Ireland. The subspecies is given as *hesperica* Boursin in Clancy and Skinner (2003).

9866 [2371]. *Archanara dissoluta* (Treitschke, 1825)

The Brown-veined Wainscot *Archanara dissoluta* was recorded from Cronykeery, Co. Wicklow in 2003-2005 and 2012 by A. Tyner, and from Portumna Forest Park, Co. Galway, in August 2006 by D. Allen *et al.* (Walsh *et al.*, 2009). It was recorded from Belle Lake, Co. Waterford on 6 August 2007 by P. M. Walsh, and from Kylenamelly, Lough Derg, Co. Galway on 3 August 2010 (P. Strickland). Recently it has been recorded from Tramore, Co. Waterford, 10 August 2012 (T. Bryant), and from Ballinamorragh, Co. Wexford, 19 August 2012 (C. J. Wilson).

9999 [2191]. *Mythimna turca* (Linnaeus, 1761)

The Double Line *Mythimna turca* was recorded from The Raven, Co. Wexford, by Philip Strickland on 25 June 2010 (Tyner, 2011a).

10022 [2202]. *Mythimna l-album* (Linnaeus, 1767)

The L-album Wainscot *Mythimna l-album* was recorded from Cape Clear Island, Co. Cork, by E. O'Donnell on 11 October 2010 (O'Donnell, 2011). A further specimen was recorded, by M. O'Donnell, from Kilpatrick Dunes, Co. Wexford on 1 October 2011.

10376 [2034]. *Lymantria dispar* (Linnaeus, 1758)

The Gypsy Moth was recorded from Rathdrum, Co. Wicklow, by D. Dennison and L. Taylor on 8 August 2004 (Clancy, 2007b).

10499 [2043]. *Eilema sororcula* (Hufnagel, 1766)

The Orange Footman *Eilema sororcula* was recorded from Cronykeery, Co. Wicklow, by A. Tyner on 9 May 2008 (Clancy, 2011; Walsh, 2011).

Notes on some species

162 [57] *Stigmella filipendulae* (Wocke, 1871)

Emmet (1981) recorded *Stigmella ulmariae* (Wocke, 1879) from leaf-mines on *Filipendula ulmaria* at Ballynahinch, while Bond recorded leaf-mines under the same name from Ballynafagh Bog, Co. Kildare, in 1997 (Langmaid and Young, 1999). According to van Nieukerken (unpublished), *S. ulmariae* is a junior synonym of *S. filipendulae* (see *Fauna Europaea*; Sterling and Parsons, 2012).

1236 [327]. *Phyllonorycter cydoniella* (Denis and Schiffermüller, 1775)

Irish records of this species refer to *Ph. hostis* Triberti, 2007 (*q.v.*). The separation of the two species and the corrected synonymy of these and closely related *Phyllonorycter* species are given by Triberti (2007). Irish specimens have been bred from crab apple *Malus sylvestris* by the senior author, and from unspecified *Malus* by Heal (NMINH collection).

1269 [332a]. *Phyllonorycter leucographella* (Zeller, 1850)

The leaf-mines of the Firethorn Leaf Miner *Phyllonorycter leucographella* were recorded in Trinity College Dublin and Terenure, both in Dublin City, in January 2005 (Bond and Ashe, 2005; Langmaid and Young, 2006). Since then, it has been reported from Cos Antrim, Armagh, Cork (East and Mid), Galway (West), Meath and Tipperary (South) (Bond, 2007; Walsh *et al.*, 2011).

1852 [622]. *Elachista adscitella* Stainton, 1851

The distribution map in Bland (1996) shows records of this species from five Irish vice-counties, but the only record found by the senior author is that of larvae found at Glengarriff, Co. Cork (West) in 1994 by Emmet and Langmaid (Agassiz *et al.*, 1996). The Irish distribution shown is identical to that of the following species, *E. bisulcella*, in Bland (1996), suggesting that the wrong distribution data were used.

2498 [516]. *Coleophora trifolii* (Curtis, 1832)

A female of this species was taken at Mercury-vapour light at Little Island, Co. Cork (East) on 17 July 2012. Identification was determined by dissection. Previous Irish records are either based on doubtfully Irish material, or are based on misidentifications, or refer to other species as a result of confusing changes in taxonomy. This should therefore be considered the only fully validated Irish record of the species.

2878 [881]. *Mompha terminella* (Humphreys and Westwood, 1845)

Mompha terminella was recorded from St John's Wood, Co. Roscommon by Emmet and Langmaid (1997). The senior author found leaf-mines of the species at the same site in Co. Roscommon, and also near Killavullen in Cork (East), both in 2011. Leaf-mines were observed by C. and B. Picton at Cultra, Co. Down on 2 October 2012, det. D. Grundy (J. McClean, pers. comm.).

3389 [779]. *Bryotropha affinis* (Haworth, 1828)

As indicated in Bland *et al.* (2002), earlier Irish records of this species were based on misdeterminations. The accompanying distribution map, however, shows records from Dublin and Sligo, these being based on older unconfirmed records or misidentifications. Based on this distribution map, the species was erroneously added to the Irish list in Bond *et al.* (2006). Since then, a number of validated Irish records have been obtained in the field or from museum collections. An authentic specimen was recorded from Tramore, Co. Waterford on 15 July 2005 (Bryant, 2007a; Langmaid and Young, 2007, 2009a). Recently, the species has been recorded from further localities: Traad Point, Co. Derry, 25 May 2010 (K. Leonard) (Langmaid and Young, 2011); Dundalk, Co. Louth, 28 June 2011 (det. confirmed by the senior author). In addition, a specimen from Clare has recently been found in the Bradley collection in BM(NH) labelled ". . . Burren: Ballynalacken area 4-22.vii.1960" (det. K. Sattler, 2011). There is also a specimen, without an abdomen, from the Russ Collection labelled "Sligo" (det. O. Karsholt) in NMINH, but it is not certain that this is of Irish origin.

4479 [1022]. *Cnephasia pasiuana* (Hübner, [1799])

This species is listed as Irish by Beirne (1941) and Bond (1995), but omitted by Bond *et al.*

(2006). It is considered that there is insufficient evidence to include this species as Irish. There is one specimen under this name in the Russ collection, labelled "Sligo", in NMINH, possibly not of Irish origin, while an earlier record from Co. Dublin cannot be confirmed.

4632 [998]. *Epiphyas postvittana* (Walker, 1863)

The Light Brown Apple Moth *Epiphyas postvittana* was first recorded from Rosslare, Co. Wexford by Bond (1998). The species is now widespread and common in much of the north, east and south of Ireland.

4842 [1155]. *Epinotia brunnichana* (Linnaeus, 1767)

A number of specimens of *Epinotia brunnichana* from a wide range of mainly western locations have been found in several museum collections. All these were placed under *E. solandriana* (Linnaeus), but dissections confirm that they are *E. brunnichana*. *E. brunnichiana* has also been found in a wide range of mainly western Irish localities in recent years. There is, however, one male *E. solandriana* in the NMINH collections, labelled "Sligo E.W. Brown VII.[18]94". Its identity was confirmed by the senior author by dissection. There are many further undissected Irish specimens under the name "*solandriana*" in various museum collections.

5020 [1180]. *Notocelia tetragonana* (Stephens, 1834)

Sterling and Parsons (2012) indicate records of this species from Co. Dublin and West Mayo, in addition to Clare. The only confirmed Irish record found by the senior author is a male from Ballyeighter Wood, Co. Clare, 20 June 1970 (J. D. Bradley) (specimen and genitalia slide checked in BM(NH)).

5101 [1253]. *Grapholita orobana* (Treitschke, 1830)

Grapholita lunulana (Denis and Schiffermüller) was recorded from Tramore Burrow, Co. Waterford, by T. Bryant on 12 May 2006 and 1 June 2006 (Langmaid and Young, 2009b). The specimens, two males, were later tentatively determined as *G. orobana* (Treitschke), and published as such, and as "new to Ireland" in Langmaid and Young (2011). Subsequent examination has confirmed that the specimens are indeed *G. lunulana*; *G. orobana* should not be placed therefore on the Irish list.

5426 [1507]. *Stenoptilia zophodactylus* (Duponchel, 1840)

Since Bond (2001), *Stenoptilia zophodactylus* has also been recorded from Graig Upper, East Cork, and Killoteran, Co. Waterford. Specimens from the new sites have been dissected.

6967 [….]. *Leptidea reali* Reissinger, 1989

Recent research (Dincă *et al.*, 2011) has shown that Irish specimens of the Cryptic Wood White previously determined as *L. reali* Reissinger are in fact *Leptidea juvernica* Williams, 1946, a taxon recently found to be specifically distinct by study of the molecular genetics.

7505 [1647]. *Watsonalla cultraria* (Fabricius, 1775)

Since its discovery in Co. Down in 1999, the Barred Hook-tip has been found at a number of additional sites in Cos Down, Galway, Clare, Limerick, and on several occasions in Co. Waterford, at Carriganore, Killoteran, west of Waterford city.

[....] 1831. *Eupithecia goossensiata* Mabille, 1869

Eupithecia goosensiata is now considered to be an ecological form of *E. absinthiata* (Clerck, 1859) (Mironov, 2003).

8660 [1867]. *Hydrelia flammeolaria* (Hufnagel, 1767)

In addition to the original single site in Co. Antrim (Belfast) and two in Co. Down, the Small Yellow Wave has been found at Barnland, Co. Wexford, 11 June 2006 (M. O'Donnell). It also continued to be reported on a number of occasions up to 2011 from Belfast, Co. Antrim, and other sites in North Down, and from Lisburn, Co. Antrim.

7540 [1890]. *Macaria alternata* ([Denis and Schiffermüller], 1775)

In addition to its first Irish location at Ardamine, Co. Wexford, the Sharp-angled Peacock has now been recorded from Kilpatrick and Barnland (M. O'Donnell) and Kilmuckridge (P. Strickland) in the same county; from Cronykeery (A. Tyner) and Avonmore riverside park (D. Dennison and L. Taylor) in Co. Wicklow; and from Tramore, Co. Waterford (T. Bryant). On 13 August 2012 a male was taken at Cloddagh, on Sherkin Island, Co. Cork by G. Hedges (dissected by the senior author).

7693 [1932]. *Agriopis leucophaearia* ([Denis and Schiffermüller], 1775)

The Spring Usher, previously known from only single records from Enniskillen, Co.

Fermanagh and Bray, Co. Wicklow, has been found at a number of widely distributed localities since 2000, mainly in Co. Wicklow (A. Tyner, M. O' Donnell, C. Osthoff, C. Flynn), but also at Cratloe Wood, Co. Clare (K. Hannan); Glendaloughin, Co. Waterford (S. MacAmhalghaidh), and at Belvoir Park, Belfast (Co. Down) (D. Allen).

7796 [1947] *Ectropis bistortata* (Goeze, 1781)

This is now treated as a synonym of *E. crepuscularia* ([Denis and Schiffermüller], 1775) in *Fauna Europaea*.

8137 [1705] *Idaea fuscovenosa* (Goeze, 1781)

This is indicated as an Irish species in Karsholt and Razowski (1996); but the authors have been unable to find a source to justify this.

8736 [2012]. *Leucodonta bicoloria* ([Denis and Schiffermüller], 1775)

The White Prominent, unrecorded from Ireland since 1938, was rediscovered at Lough Carra, Co. Kerry in 2008 (Allen *et al.*, 2008). The species has also been recorded, sometimes in numbers, at or near this locality in the years 2009 to 2012.

9454 [2384]. *Hoplodrina ambigua* ([Denis and Schiffermüller], 1775)

In addition to the two records quoted in Bond *et al.* (2006), Vine's Rustic, has been recorded from Rathlin Island, Co. Antrim, 28 August 2001 (M. Hughes *et al.*, det P. Waring), while a male taken on Cape Clear Island, Co. Cork on 11 October 2010 by E. O'Donnell was dissected by the senior author.

8874 [2452]. *Catocala nupta* (Linnaeus, 1767)

Previously known only from a 1906 record from Co. Cork; the Red Underwing was recorded singly on four occasions in Co. Louth in the period 2006 to 2011 (D. Hodgers, S. McKeever, C. Honan).

9790 [2343a]. *Mesapamea secalella* Remm, 1983

Recent taxonomic studies (Zilli *et al.*, 2005) have shown that the name *didyma* Esper is a junior synonym of *secalis* Linnaeus, 1758. The name used for the Lesser Common Rustic therefore reverts to *Mesapamea secalella* Remm, 1983.

Other species

An Irish distribution is indicated for six species indicated below in Sterling and Parsons (2012); but either the records upon which this is based are erroneous, as indicated in Bond (1995), *viz. Glyphipterix equitella*, *Epinotia demarniana*, *Crambus pratella* and *C. hamella,* or, as in the case of *Eana incanana* and *Merrifieldia baliodactylus*, it cannot be substantiated by the senior author.

Species removed from the Irish Lepidoptera list

142 [71]. *Stigmella zelleriella* (Snellen, 1875)

Further examination of the genitalia slide of the specimen from Bull Island, Co. Dublin and reference to the illustrations in Bengtson (2008), indicate that it is a male *Stigmella salicis* (Stainton, 1854). *S. zelleriella* should therefore be removed from the Irish list.

1322 [356]. *Phyllonorycter tristrigella* (Haworth, 1828)

Bradley's record of *Phyllonorycter tristrigella* from South Kerry is erroneous (Mere *et al.*, 1964). The specimen, which is in the BM(NH) collection, has been re-examined, dissected, and determined as a male *Ph. nicellii* (Stainton) by the senior author.

2716 [562]. *Coleophora asteris* Mühlig, 1864

The record of this species from Co. Meath in Emmet *et al.* (1996), repeated in Bond *et al.* (2006), is erroneous, being based on a misidentification of *Coleophora virgaureae* (see Emmet and Langmaid, 1997: 150).

2721 [566]. *Coleophora sternipennella* (Zetterstedt, 1839)

Bond (2005) and Langmaid and Young (2005) reported *Coleophora sternipennella* from Clare Island, Co. Mayo. This record is erroneous, being based on a misidentification of a female of *C. saxicolella* (Duponchel).

2939 [871] *Oegoconia deauratella* (Herrich-Schäffer, 1854)

The indication of the occurrence of this species in Ireland in Bland (2002) and Bond *et al.* (2006) is incorrect. The records mentioned in Bland (2002) refer to *O. quadripuncta* (Haworth, 1828), and the associated vice-county distribution shown there should be combined with that for

O. quadripuncta.

3231 [751]. *Aristotelia subdecurtella* (Stainton, 1859)

The map showing the Irish distribution of *Aristotelia subdecurtella* in Bland *et al.* (2002) and the inclusion of this species in Bond *et al.* (2006) areerroneous, As implied in the accompanying text in Bland *et al.* (2002), this species has not been recorded in Ireland. The map in question indicates the Irish distribution of *Metzneria aestivella* (Zeller, 1839).

3242 [746]. *Chrysoesthia drurella* (Fabricius, 1775)

The inclusion of this species in Bond *et al.* (2006) is incorrect, probably arising through confusion with the taxononomy. The record indicated there refers to *Cosmopterix orichalea* Stainton, 1861 (= *C. druryella* Zeller, 1850 misidentification).

4493 [1016]. *Cnephasia longana* (Haworth, 1811)

Although earlier records were accepted by Beirne (1941), Bond (1995) and Bond *et al.* (2006), the inclusion of this species on the Irish list seems unjustified. There are two specimens under this name in the Russ collection, one labelled "Sligo", in NMINH, but it is possible that they are not of Irish origin.

4721 [1065]. *Celypha rufana* (Scopoli, 1763)

The Greer record of *Celypha rufana* was accepted by Beirne (1942), but Huggins (1950) gives reasons for rejecting it. The species was not listed in Bond *et al.* (2006).

4945 [1194]. *Eucosma aemulana* (Schläger, 1849)

The record in Beirne (1945), repeated in Bond *et al.* (2006) is based on a misidentification (E. Hancock, pers. comm.) and the species should be deleted from the Irish list.

6082 [1482]. *Homoeosoma nimbella* (Duponchel, 1836)

There are no proven Irish specimens in NMINH. The earliest Irish record by Shield (1853) refers to larvae in seeds of "wild chamomile", but the reported foodplant of this species is sheep's-bit, *Jasiona montana* (Sterling and Parsons, 2012), suggesting the species involved may have been the superficially similar *Phycitodes saxicola*.

7021 [1543]. *Colias hyale* (Linnaeus, 1758)

There are no confirmed Irish records of this species (Nash *et al.*, 2012).

7724 [1936]. *Menophra abruptaria* (Thunberg, 1792)

This was considered doubtfully Irish by Baynes (1964), and there have no more recent records of this species.

8698 [2019]. *Clostera curtula* (Linnaeus, 1758)

According to Baynes (1964) "further evidence of the existence of this species in Ireland is desirable", although he does mention that larvae had been reported "from time to time", but no moths were bred. Although the species was included in Bond *et al.* (2006), the Irish status of the species should be considered unconfirmed.

8778 [2279]. *Acronicta aceris* (Linnaeus, 1758)

This species was included as Irish without comment in Bond *et al.* (2006), although the Irish records were considered unconfirmed by Baynes (1964). As there have been no subsequent records, the status remains unconfirmed.

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Record and Journal of Variation **119**: 241-266.

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Appendix

A concise and updated checklist of the Irish Lepidoptera is provided, based on Bond, Nash and O'Connor (2006) and information contained in the present paper. The Fauna Europaea species number is used, followed by the number used in Bradley (2000) in square brackets. Binomial names are given but Irish subspecies are indicated where considered relevant. Deleted species are in square brackets **[ ]**. Additions since Bond *et al.* (2006) are indicated by an asterix*.

SYSTEMATIC LIST

An "A" preceding the species number indicates that the species is considered an adventive, or accidental introduction, incapable of breeding in Ireland.

MICROPTERIGIDAE

7 [4]. *Micropterix aruncella* (Scopoli, 1763)

8 [3]. *Micropterix aureatella* (Scopoli, 1763)

10 [5]. *Micropterix calthella* (Linnaeus, 1761)

28 [2]. *Micropterix mansuetella* Zeller, 1844

ERIOCRANIIDAE

48 [6]. *Dyseriocrania subpurpurella* (Haworth, 1828)

Synonym *Eriocrania subpurpurella* (Haworth, 1828)

49 [7]. *Paracrania chrysolepidella* (Zeller, 1851)

Synonym *Eriocrania chrysolepidella* (Zeller, 1851)

50 [8]. *Heringocrania unimaculella* (Zetterstedt, 1839)

Synonym *Eriocrania unimaculella* (Zetterstedt, 1839)

51 [9]. *Eriocrania sparrmannella* (Bosc, 1791)

52 [10]. *Eriocrania salopiella* (Stainton, 1854)

53 [11]. *Eriocrania cicatricella* (Zetterstedt, 1839)

55 [12]. *Eriocrania sangii* (Wood, 1891)

56 [13]. *Eriocrania semipurpurella* (Stephens, 1835)

HEPIALIDAE

67 [17]. *Pharmacis lupulina* (Linnaeus, 1758)

Synonym *Hepialus lupulina* (Linnaeus, 1758)

COMMON SWIFT

69 [18]. *Pharmacis fusconebulosa* (DeGeer, 1778)

Synonym *Hepialus fusconebulosa* (DeGeer, 1778)

MAP-WINGED SWIFT

78 [16]. *Phymatopus hecta* (Linnaeus, 1758)

Synonym *Hepialus hecta* (Linnaeus, 1758)

GOLD SWIFT

80 [14]. *Hepialus humuli* (Linnaeus, 1758)

GHOST MOTH

NEPTICULIDAE

86 [118]. *Enteucha acetosae* (Stainton, 1854)

89 [116]. *Stigmella lapponica* (Wocke, 1862)

90 [117]. *Stigmella confusella* (Wood and Walsingham, 1894)

96 [110]. *Stigmella betulicola* (Stainton, 1856)

99 [112]. *Stigmella luteella* (Stainton, 1857)

100 [114]. *Stigmella glutinosae* (Stainton, 1858)

101 [115]. *Stigmella alnetella* (Stainton, 1856)

102 [111]. *Stigmella microtheriella* (Stainton, 1854)

105 [97]. *Stigmella malella* (Stainton, 1854)

APPLE PYGMY

109 [98]. *Stigmella catharticella* (Stainton, 1853)

110 [92]. *Stigmella anomalella* (Goeze, 1783)

ROSE LEAF MINER

111 [94]. *Stigmella spinosissimae* (Waters, 1928)

113 [80]. *Stigmella ulmivora* (Fologne, 1860)

120 [82]. *Stigmella paradoxa* (Frey, 1858)

126 [108]. *Stigmella crataegella* (Klimesch, 1936)

128 [104]. *Stigmella magdalenae* (Klimesch, 1950)

129 [103]. *Stigmella nylandriella* (Tengström, 1848)

130 [100]. *Stigmella oxyacanthella* (Stainton, 1854)

134 [99]. *Stigmella hybnerella* (Hübner, 1796)

136 [75]. *Stigmella floslactella* (Haworth, 1828)

138 [77]. *Stigmella tityrella* (Stainton, 1854)

139 [68]. *Stigmella salicis* (Stainton, 1854)

141 [72]. *Stigmella myrtillella* (Stainton, 1857)

[142 [71]. *Stigmella zelleriella* (Snellen, 1875)**]**

144 [70]. *Stigmella obliquella* (Heinemann, 1862)

146 [73]. *Stigmella trimaculella* (Haworth, 1828)

148 [66]. *Stigmella sorbi* (Stainton, 1861)

149 [67]. *Stigmella plagicolella* (Stainton, 1854)

150 [63]. *Stigmella lemniscella* (Zeller, 1839)

151 [64]. *Stigmella continuella* (Stainton, 1856)

152 [50]. *Stigmella aurella* (Fabricius, 1775)

153 [54]. *Stigmella auromarginella* (Richardson, 1890)

154 [53]. *Stigmella splendidissimella* (Herrich-Schäffer, 1855)

157 [55]. *Stigmella aeneofasciella* (Herrich-Schäffer, 1855)

160 [56]. *Stigmella dryadella* (O. Hofmann, 1868)

161 [59]. *Stigmella poterii* (Stainton, 1857)

162 [57]. *Stigmella filipendulae* (Wocke, 1871)

Synonym *Stigmella ulmariae* (Wocke, 1879)

166 [79]. *Stigmella perpygmaeella* (Doubleday, 1859)

169 [81]. *Stigmella hemargyrella* (Kollar, 1832)

174 [87]. *Stigmella svenssoni* (Johansson, 1971)

179 [84]. *Stigmella ruficapitella* (Haworth, 1828)

180 [83]. *Stigmella atricapitella* (Haworth, 1828)

207 [48]. *Trifurcula cryptella* (Stainton, 1856)

208 [49]. *Trifurcula eurema* (Tutt, 1899)

217 [45]. *Trifurcula subnitidella* (Duponchel, 1843)

222 [46]. *Trifurcula immundella* (Zeller, 1839)

239 [40]. *Bohemannia pulverosella* (Stainton, 1849)

240 [19]. *Bohemannia quadrimaculella* (Boheman, 1853)

254 [42]. *Ectoedemia septembrella* (Stainton, 1849)

268 [25]. *Ectoedemia intimella* (Zeller, 1848)

273 [23]. *Ectoedemia argyropeza* (Zeller, 1839)

288 [37]. *Ectoedemia albifasciella* (Heinemann, 1871)

292 [38]. *Ectoedemia subbimaculella* (Haworth, 1828)

***293 [39].** *Ectoedemia heringi* (Toll, 1934)

301 [28]. *Ectoedemia angulifasciella* (Stainton, 1849)

302 [29]. *Ectoedemia atricollis* (Stainton, 1857)

303 [30]. *Ectoedemia arcuatella* (Herrich-Schäffer, 1855)

304 [31]. *Ectoedemia rubivora* (Wocke, 1860)

307 [34]. *Ectoedemia occultella* (Linnaeus, 1767)

308 [35]. *Ectoedemia minimella* (Zetterstedt, 1839)

OPOSTEGIDAE

315 [119]. *Opostega salaciella* (Treitschke, 1833)

319 [121]. *Pseudopostega crepusculella* (Zeller, 1839)

HELIOZELIDAE

329 [154]. *Heliozela sericiella* (Haworth, 1828)

330 [156]. *Heliozela resplendella* (Stainton, 1851)

331 [157]. *Heliozela hammoniella* Sorhagen, 1885

ADELIDAE

338 [148]. *Nemophora degeerella* (Linnaeus, 1758)

349 [146]. *Nemophora cupriacella* (Hübner, [1819])

356 [145]. *Nemophora minimella* ([Denis and Schiffermüller], 1775)

365 [150]. *Adela reaumurella* (Linnaeus, 1758)

366 [149]. *Adela cuprella* ([Denis and Schiffermüller], 1775)

371 [151]. *Adela croesella* (Scopoli, 1763)

382 [152]. *Cauchas rufimitrella* (Scopoli, 1763)

Synonym *Adela rufimitrella* (Scopoli, 1763)

387 [141]. *Nematopogon schwarziellus* Zeller, 1839

388 [143a]. *Nematopogon magna* (Zeller, 1878)

390 [143]. *Nematopogon metaxella* (Hübner, [1813])

391 [140]. *Nematopogon swammerdamella* (Linnaeus, 1758)

Nematopogon pilella misidentification

INCURVARIIDAE

423 [129]. *Incurvaria pectinea* Haworth, 1828

424 [130]. *Incurvaria masculella* ([Denis and Schiffermüller], 1775)

429 [131]. *Incurvaria oehlmanniella* (Hübner, 1796)

430 [132]. *Incurvaria praelatella* ([Denis and Schiffermüller], 1775)

433 [128]. *Phylloporia bistrigella* (Haworth, 1828)

PRODOXIDAE

398 [135]. *Lampronia luzella* (Hübner, [1817])

399 [136]. *Lampronia corticella* (Linnaeus, 1758)

RASPBERRY MOTH

409 [139]. *Lampronia pubicornis* (Haworth, 1828)

TISCHERIIDAE

440 [123]. *Tischeria ekebladella* (Bjerkander, 1795)

441 [124]. *Tischeria dodonaea* Stainton, 1858

444 [125]. *Coptotriche marginea* (Haworth, 1828)

Synonym *Emmetia marginea* (Haworth, 1828)

TINEIDAE

476 [212]. *Haplotinea insectella* (Fabricius, 1794)

565 [204]. *Infurcitinea albicomella* (Stainton, 1851)

572 [203]. *Infurcitinea argentimaculella* (Stainton, 1849)

600 [198]. *Dryadaula pactolia* Meyrick, 1902

613 [225]. *Triaxomera fulvimitrella* (Sodoffsky, 1830)

623 [215]. *Nemapogon granella* (Linnaeus, 1758)

CORN MOTH

624 [216]. *Nemapogon cloacella* (Haworth, 1828)

CORK MOTH

630 [219]. *Nemapogon ruricolella* (Stainton, 1849)

641 [220]. *Nemapogon clematella* (Fabricius, 1781)

661 [234]. *Trichophaga tapetzella* (Linnaeus, 1758)

TAPESTRY MOTH

669 [236]. *Tineola bisselliella* (Hummel, 1823)

COMMON CLOTHES MOTH

671 [240]. *Tinea pellionella* Linnaeus, 1758

CASE-BEARING CLOTHES MOTH

675 [243]. *Tinea dubiella* Stainton, 1859

676 [244]. *Tinea flavescentella* Haworth, 1828

680 [245]. *Tinea pallescentella* Stainton, 1851

LARGE PALE CLOTHES MOTH

686 [246]. *Tinea semifulvella* Haworth, 1828

687 [247]. *Tinea trinotella* Thunberg, 1794

689 [237]. *Niditinea fuscella* (Linnaeus, 1758)

BROWN-DOTTED CLOTHES MOTH

700 [227]. *Monopis laevigella* ([Denis and Schiffermüller], 1775)

SKIN MOTH

701 [228]. *Monopis weaverella* (Scott, 1858)

705 [230]. *Monopis crocicapitella* (Clemens, 1859)

707 [231]. *Monopis imella* (Hübner, [1813])

721 [277]. *Oinophila v-flava* (Haworth, 1828)

YELLOW V MOTH

728 [199]. *Psychoides verhuella* Bruand, 1853

729 [200]. *Psychoides filicivora* (Meyrick, 1937)

PSYCHIDAE

747 [180]. *Diplodoma laichartingella* Goeze, 1783

Synonym *Diplodoma herminata* (Geoffroy, 1785)

864 [185]. *Luffia ferchaultella* (Stephens, 1850)

877 [186]. *Psyche casta* (Pallas, 1767)

878 [187]. *Psyche crassiorella* Bruand, 1851

926 [189]. *Epichnopterix plumella* ([Denis and Schiffermüller], 1775)

BUCCULATRICIDAE

1052 [271]. *Bucculatrix albedinella* (Zeller, 1839)

1060 [275]. *Bucculatrix bechsteinella* (Bechstein and Scharfenberg, 1805)

1065 [272]. *Bucculatrix cidarella* (Zeller, 1839)

1066 [265]. *Bucculatrix cristatella* (Zeller, 1839)

1067 [276]. *Bucculatrix demaryella* (Duponchel, 1840)

1070 [270]. *Bucculatrix frangutella* (Goeze, 1783)

1081 [267]. *Bucculatrix maritima* Stainton, 1851

1083 [266]. *Bucculatrix nigricomella* (Zeller, 1839)

1094 [274]. *Bucculatrix ulmella* Zeller, 1848

GRACILLARIIDAE

1110 [286]. *Caloptilia alchimiella* (Scopoli, 1763)

***1111 [285].** *Caloptilia azaleella* (Brants, 1913)

AZALEA LEAF MINER

1112 [283]. *Caloptilia betulicola* (M. Hering, 1928)

1115 [280]. *Caloptilia cuculipennella* (Hübner, 1796)

1116 [282]. *Caloptilia elongella* (Linnaeus, 1761)

1117 [289]. *Caloptilia falconipennella* (Hübner, [1813])

1125 [281]. *Caloptilia populetorum* (Zeller, 1839)

1127 [287]. *Caloptilia robustella* Jäckh, 1972

***1129 [284].** *Caloptilia rufipennella* (Hübner, 1796)

1131 [288]. *Caloptilia stigmatella* (Fabricius, 1781)

1135 [293]. *Gracillaria syringella* (Fabricius, 1794)

Synonym *Caloptilia syringella* (Fabricius, 1794)

1143 [294]. *Aspilapteryx tringipennella* (Zeller, 1839)

1145 [297]. *Euspilapteryx auroguttella* Stephens, 1835

Synonym *Calybites auroguttella* (Stephens, 1835)

1147 [296]. *Calybites phasianipennella* (Hübner, [1813])

1150 [292]. *Povolnya leucapennella* (Stephens, 1835)

Synonym *Caloptilia leucapennella* (Stephens, 1835)

1154 [313]. *Acrocercops brongniardella* (Fabricius, 1798)

1172 [310]. *Callisto denticulella* (Thunberg, 1794)

1178 [303]. *Parornix anglicella* (Stainton, 1850)

1181 [301]. *Parornix betulae* (Stainton, 1854)

1184 [304]. *Parornix devoniella* (Stainton, 1850)

1187 [308]. *Parornix finitimella* (Zeller, 1850)

1190 [300]. *Parornix loganella* (Stainton, 1848)

1197 [305]. *Parornix scoticella* (Stainton, 1850)

1200 [309]. *Parornix torquillella* (Zeller, 1850)

Synonym *Deltaornix torquillella* (Zeller, 1850)

1220 [326]. *Phyllonorycter blancardella* (Fabricius, 1781)

1234 [342]. *Phyllonorycter coryli* (Nicelli, 1851)

NUT LEAF BLISTER MOTH

1235 [332]. *Phyllonorycter corylifoliella* (Hübner, 1796)

1242 [354]. *Phyllonorycter emberizaepenella* (Bouché, 1834)

1247 [358]. *Phyllonorycter froelichiella* (Zeller, 1839)

1248 [364]. *Phyllonorycter geniculella* (Ragonot, 1874)

1253 [315]. *Phyllonorycter harrisella* (Linnaeus, 1761)

1254 [317]. *Phyllonorycter heegeriella* (Zeller, 1846)

1257 [337]. *Phyllonorycter hilarella* (Zetterstedt, 1839)

1257a [327]. *Phyllonorycter hostis* Triberti, 2007

Phyllonorycter cydoniella ([Denis and Schiffermüller], 1775) misidentification

1259 [350]. *Phyllonorycter insignitella* (Zeller, 1846)

1265 [360]. *Phyllonorycter klemannella* (Fabricius, 1781)

1268 [351]. *Phyllonorycter lautella* (Zeller, 1846)

1269 [332a]. *Phyllonorycter leucographella* (Zeller, 1850)

FIRETHORN LEAF MINER

1270 [341]. *Phyllonorycter maestingella* (Müller, 1764)

1273 [325]. *Phyllonorycter mespilella* (Hübner, [1805])

1274 [321]. *Phyllonorycter messaniella* (Zeller, 1846)

1279 [359]. *Phyllonorycter nicellii* (Stainton, 1851)

1280 [349]. *Phyllonorycter nigrescentella* (Logan, 1851)

1282 [323]. *Phyllonorycter oxyacanthae* (Frey, 1856)

1292 [320]. *Phyllonorycter quercifoliella* (Zeller, 1839)

1293 [348]. *Phyllonorycter quinqueguttella* (Stainton, 1851)

1294 [345]. *Phyllonorycter rajella* (Linnaeus, 1758)

1297 [316]. *Phyllonorycter roboris* (Zeller, 1839)

1300 [335]. *Phyllonorycter salicicolella* (Sircom, 1848)

1301 [333]. *Phyllonorycter salictella* (Zeller, 1846)

Synonym *Phyllonorycter viminiella* (Sircom, 1848)

1307 [340]. *Phyllonorycter scopariella* (Zeller, 1846)

1308 [324]. *Phyllonorycter sorbi* (Frey, 1855)

1310 [329]. *Phyllonorycter spinicolella* (Zeller, 1846)

1319 [361]. *Phyllonorycter trifasciella* (Haworth, 1828)

[1322 [356]. *Phyllonorycter tristrigella* (Haworth, 1828)]

1326 [353]. *Phyllonorycter ulmifoliella* (Hübner, [1817])

1327 [334]. *Phyllonorycter viminetorum* (Stainton, 1854)

1337 [368]. *Phyllocnistis unipunctella* (Stephens, 1834)

YPONOMEUTIDAE

1347 [424]. *Yponomeuta evonymella* (Linnaeus, 1758)

BIRD-CHERRY ERMINE

1348 [425]. *Yponomeuta padella* (Linnaeus, 1758)

ORCHARD ERMINE

1349 [426]. *Yponomeuta malinellus* Zeller, 1838

APPLE ERMINE

1350 [427]. *Yponomeuta cagnagella* (Hübner, [1813])

SPINDLE ERMINE

1354 [430]. *Yponomeuta plumbella* ([Denis and Schiffermüller], 1775)

1359 [435]. *Zelleria hepariella* Stainton, 1849

1391 [434]. *Kessleria saxifragae* (Stainton, 1868)

1398 [436]. *Pseudoswammerdamia combinella* (Hübner, 1786)

1400 [437]. *Swammerdamia caesiella* (Hübner, 1796)

1402 [438]. *Swammerdamia pyrella* (Villers, 1789)

***1403 [439].** *Swammerdamia compunctella* Herrich-Schäffer, 1855

1404 [440]. *Paraswammerdamia albicapitella* (Scharfenberg, 1805)

1408 [441]. *Paraswammerdamia nebulella* (Goeze, 1783)

Synonym *Paraswammerdamia lutarea* (Haworth, 1828)

1412 [443]. *Cedestis subfasciella* (Stephens, 1834)

1416 [444]. *Ocnerostoma piniariella* Zeller, 1847

1417 [445]. *Ocnerostoma friesei* Svensson, 1966

PRAYDIDAE

1424 [449]. *Prays fraxinella* (Bjerkander, 1784)

ASH BUD MOTH

ARGYRESTHIIDAE

1433 [401]. *Argyresthia laevigatella* Herrich-Schäffer, 1855

1441 [405]. *Argyresthia arceuthina* Zeller, 1839

***1442 [409a].** *Argyresthia trifasciata* Staudinger, 1871

***1447a [409b].** *Argyresthia cupressella* Walsingham, 1890

1447 [407]. *Argyresthia dilectella* Zeller, 1847

1453 [410]. *Argyresthia brockeella* (Hübner, [1813])

1454 [411]. *Argyresthia goedartella* (Linnaeus, 1758)

1455 [412]. *Argyresthia pygmaeella* ([Denis and Schiffermüller], 1775)

1456 [413]. *Argyresthia sorbiella* (Treitschke, 1833)

1458 [414]. *Argyresthia curvella* (Linnaeus, 1761)

1459 [415]. *Argyresthia retinella* Zeller, 1839

1461 [416]. *Argyresthia glaucinella* Zeller, 1839

1462 [417]. *Argyresthia spinosella* Stainton, 1849

1463 [418]. *Argyresthia conjugella* Zeller, 1839

APPLE FRUIT MOTH

1465 [419]. *Argyresthia semifusca* (Haworth, 1828)

1466 [420]. *Argyresthia pruniella* (Clerck, 1759)

CHERRY FRUIT MOTH

1467 [421]. *Argyresthia bonnetella* (Linnaeus, 1758)

1468 [422]. *Argyresthia albistria* (Haworth, 1828)

1469 [423]. *Argyresthia semitestacella* (Curtis, 1833)

YPSOLOPHIDAE

1480 [451]. *Ypsolopha mucronella* (Scopoli, 1763)

1481 [452]. *Ypsolopha nemorella* (Linnaeus, 1758)

1482 [453]. *Ypsolopha dentella* (Fabricius, 1775)

HONEYSUCKLE MOTH

1486 [455]. *Ypsolopha scabrella* (Linnaeus, 1761)

1493 [460]. *Ypsolopha parenthesella* (Linnaeus, 1761)

1494 [461]. *Ypsolopha ustella* (Clerck, 1759)

1496 [463]. *Ypsolopha vittella* (Linnaeus, 1758)

1520 [251]. *Ochsenheimeria taurella* ([Denis and Schiffermüller], 1775)

1521 [252]. *Ochsenheimeria urella* Fischer von Röslerstamm, 1842

PLUTELLIDAE

1525 [464]. *Plutella xylostella* (Linnaeus, 1758)

DIAMOND-BACK MOTH

1528 [465]. *Plutella porrectella* (Linnaeus, 1758)

1533 [466]. *Rhigognostis senilella* (Zetterstedt, 1839)

1535 [467]. *Rhigognostis annulatella* (Curtis, 1832)

1537 [468]. *Rhigognostis incarnatella* (Steudel, 1873)

GLYPHIPTERIGIDAE

1556 [472]. *Digitivalva pulicariae* (Klimesch, 1956)

***1572 [476].** *Acrolepia autumnitella* Curtis, 1838

1576 [470]. *Orthotelia sparganella* (Thunberg, 1788)

1580 [397]. *Glyphipterix thrasonella* (Scopoli, 1763)

1591 [395]. *Glyphipterix haworthana* (Stephens, 1834)

1592 [394]. *Glyphipterix forsterella* (Fabricius, 1781)

1594 [391]. *Glyphipterix simpliciella* (Stephens, 1834)

COCKSFOOT MOTH

1595 [392]. *Glyphipterix schoenicolella* Boyd, 1858

BEDELLIIDAE

1602 [264]. *Bedellia somnulentella* (Zeller, 1847)

LYONETIIDAE

1606 [259]. *Leucoptera lotella* (Stainton, 1859)

1610 [254]. *Leucoptera laburnella* (Stainton, 1851)

LABURNUM LEAF MINER

1611 [256]. *Leucoptera spartifoliella* (Hübner, [1813])

1616 [258]. *Leucoptera lathyrifoliella* (Stainton, 1866)

1618 [260]. *Leucoptera malifoliella* (O. Costa, 1836)

PEAR LEAF BLISTER MOTH

1627 [263]. *Lyonetia clerkella* (Linnaeus, 1758)

APPLE LEAF MINER

ELACHISTIDAE

***1668 [666].** *Semioscopis avellanella* (Hübner, 1793)

***1670 [667].** *Semioscopis steinkellneriana* ([Denis and Schiffermüller], 1775)

1678 [687]. *Exaeretia allisella* Stainton, 1849

1691 [701]. *Agonopterix ocellana* (Fabricius, 1775)

1707 [702]. *Agonopterix assimilella* (Treitschke, 1832)

1712 [694]. *Agonopterix nanatella* (Stainton, 1849)

1718 [689]. *Agonopterix ciliella* (Stainton, 1849)

1719 [697]. *Agonopterix arenella* ([Denis and Schiffermüller], 1775)

1721 [696]. *Agonopterix propinquella* (Treitschke, 1835)

1722 [692]. *Agonopterix subpropinquella* (Stainton, 1849)

1729 [714]. *Agonopterix yeatiana* (Fabricius, 1781)

1730 [695]. *Agonopterix alstromeriana* (Clerck, 1759)

1732 [691]. *Agonopterix purpurea* (Haworth, 1811)

1735 [710]. *Agonopterix conterminella* (Zeller, 1839)

1736 [688]. *Agonopterix heracliana* (Linnaeus, 1758)

1737 [715]. *Agonopterix capreolella* (Zeller, 1839)

1739 [716]. *Agonopterix rotundella* (Douglas, 1846)

1740 [713]. *Agonopterix angelicella* (Hübner, [1813])

1741 [712]. *Agonopterix astrantiae* (Heinemann, 1870)

1756 [700]. *Agonopterix pallorella* (Zeller, 1839)

1757 [698]. *Agonopterix kaekeritziana* (Linnaeus, 1767)

1758 [709]. *Agonopterix liturosa* (Haworth, 1811)

1763 [706]. *Agonopterix nervosa* (Haworth, 1811)

1764 [705]. *Agonopterix umbellana* (Fabricius, 1794)

1776 [672]. *Depressaria radiella* (Goeze, 1783)

heraclei Retzius, 1783 misidentification

Synonym *Depressarisa pastinacella* (Duponchel, 1838)

PARSNIP MOTH

1783 [671]. *Depressaria ultimella* Stainton, 1849

1788 [674]. *Depressaria badiella* (Hübner, 1796)

1793 [670]. *Depressaria daucella* ([Denis and Schiffermüller], 1775)

1798 [676]. *Depressaria pulcherrimella* Stainton, 1849

1799 [677]. *Depressaria douglasella* Stainton, 1849

Note: some species in the genus *Elachista* were placed in the genera *Biselachista* or *Cosmiotes* in Bond *et al*. (2006).

1828 [632]. *Elachista consortella* Stainton, 1851

1830 [631]. *Elachista freyerella* (Hübner, [1825])

1839 [590]. *Perittia obscurepunctella* (Stainton, 1848)

1852 [622]. *Elachista adscitella* Stainton, 1851

1855 [630]. *Elachista albidella* Nylander, 1848

1856 [601]. *Elachista albifrontella* (Hübner, [1817])

1857 [599]. *Elachista alpinella* Stainton, 1854

1862 [602]. *Elachista apicipunctella* Stainton, 1849

1863 [610]. *Elachista argentella* (Clerck, 1759)

1865 [597]. *Elachista atricomella* Stainton, 1849

***1874 [595].** *Elachista biatomella* (Stainton, 1848)

1877 [623]. *Elachista bisulcella* (Duponchel, 1843)

1882 [615]. *Elachista cahorsensis* Traugott-Olsen, 1992

1883 [607]. *Elachista canapennella* (Hübner, [1813])

1889 [625]. *Elachista cinereopunctella* (Haworth, 1828)

1910 [628]. *Elachista eleochariella* Stainton, 1851

1921 [620]. *Elachista gangabella* Zeller, 1850

1925 [594]. *Elachista gleichenella* (Fabricius, 1781)

1937 [606]. *Elachista humilis* Zeller, 1850

1951 [598]. *Elachista kilmunella* Stainton, 1849

1965 [600]. *Elachista luticomella* Zeller, 1839

1973 [617]. *Elachista obliquella* Stainton, 1854

Elachista megerlella (Hübner, [1810]) misidentification

1974 [609]. *Elachista maculicerusella* (Bruand, 1859)

Synonym *Elachista monosemiella* Rössler, 1881

1995 [596]. *Elachista poae* Stainton, 1855

2005 [593]. *Elachista regificella* Sircom, 1849

2009 [608]. *Elachista rufocinerea* (Haworth, 1828)

2011 [627]. *Elachista scirpi* Stainton, 1887

2012 [626]. *Elachista serricornis* Stainton, 1854

2020 [621]. *Elachista subalbidella* Schläger, 1847

2021 [603]. *Elachista subnigrella* Douglas, 1853

2030 [624]. *Elachista trapeziella* Stainton, 1849

2022 [613]. *Elachista subocellea* (Stephens, 1834)

2031 [611]. *Elachista triatomea* (Haworth, 1828)

2035 [629]. *Elachista utonella* Frey, 1856

***2048 [903].** *Chrysoclista linneella* (Clerck, 1759)

***2049 [902].** *Chrysoclista lathamella* T. Fletcher, 1936

2056 [906]. *Blastodacna atra* (Haworth, 1828)

APPLE PITH MOTH

2057 [905]. *Blastodacna hellerella* (Duponchel, 1838)

2060 [904]. *Spuleria flavicaput* (Haworth, 1828)

3078 [657]. *Hypercallia citrinalis* (Scopoli, 1763)

SCYTHRIDIDAE

2088 [911]. *Scythris grandipennis* (Haworth, 1828)

2105 [915]. *Scythris picaepennis* (Haworth, 1828)

CHIMABACHIDAE

2231 [663]. *Diurnea fagella* ([Denis and Schiffermüller], 1775)

2232 [664]. *Diurnea lipsiella* ([Denis and Schiffermüller], 1775)

2234 [665]. *Dasystoma salicella* (Hübner, 1796)

OECOPHORIDAE

2262 [636]. *Denisia similella* (Hübner, 1796)

2282 [648]. *Endrosis sarcitrella* (Linnaeus, 1758)

WHITE-SHOULDERED HOUSE-MOTH

2284 [647]. *Hofmannophila pseudospretella* (Stainton, 1849)

BROWN HOUSE-MOTH

2287 [644]. *Borkhausenia fuscescens* (Haworth, 1828)

2286 [645]. *Borkhausenia minutella* (Linnaeus, 1758)

2301 [641]. *Batia lambdella* (Donovan, 1793)

2312 [649]. *Esperia sulphurella* (Fabricius, 1775)

2321 [652]. *Alabonia geoffrella* (Linnaeus, 1767)

2348 [654]. *Pleurota bicostella* (Clerck, 1759)

PELEOPODIDAE

2328 [658]. *Carcina quercana* (Fabricius, 1775)

BATRACHEDRIDAE

2428 [878]. *Batrachedra praeangusta* (Haworth, 1828)

COLEOPHORIDAE

2453 [490]. *Coleophora lutipennella* (Zeller, 1838)

2456 [491]. *Coleophora gryphipennella* (Hübner, 1796)

2457 [492]. *Coleophora flavipennella* (Duponchel, 1843)

2460 [496]. *Coleophora milvipennis* Zeller, 1839

2464 [501]. *Coleophora siccifolia* Stainton, 1856

2468 [493]. *Coleophora serratella* (Linnaeus, 1761)

2469 [495]. *Coleophora spinella* (Schrank, 1802)

APPLE AND PLUM CASE-BEARER

2476 [503]. *Coleophora fuscocuprella* Herrich-Schäffer, 1885

2479 [504]. *Coleophora lusciniaepennella* (Treitschke, 1833)

2488 [513]. *Coleophora potentillae* Elisha, 1885

2492 [510]. *Coleophora juncicolella* Stainton, 1851

2493 [511]. *Coleophora orbitella* Zeller, 1849

2494 [512]. *Coleophora binderella* (Kollar, 1832)

2498 [516]. *Coleophora trifolii* (Curtis, 1832)

2499 [517a]. *Coleophora frischella* (Linnaeus, 1758)

CLOVER CASE-BEARER

2546 [524]. *Coleophora lithargyrinella* Zeller, 1849

2572 [547]. *Coleophora discordella* Zeller, 1849

2585 [519]. *Coleophora deauratella* Lienig and Zeller, 1846

2587 [518]. *Coleophora mayrella* (Hübner, [1813])

2592 [533]. *Coleophora anatipenella* (Hübner, 1796)

Synonym *Coleophora bernoulliella* (Goeze, 1783)

PISTOL CASE-BEARER

2593 [532]. *Coleophora albidella* ([Denis and Schiffermüller], 1775)

2595 [535]. *Coleophora ibipennella* Zeller, 1849

2596 [536]. *Coleophora betulella* Heinemann, 1877

2601 [541]. *Coleophora pyrrhulipennella* Zeller, 1839

2654 [530]. *Coleophora lixella* Zeller, 1849

2662 [544]. *Coleophora albicosta* (Haworth, 1828)

2683 [526]. *Coleophora laricella* (Hübner, [1817])

LARCH CASE-BEARER

2686 [586]. *Coleophora adjunctella* Hodgkinson, 1882

2687 [587]. *Coleophora caespititiella* Zeller, 1839

2688 [583]. *Coleophora tamesis* Waters, 1929

2689 [582]. *Coleophora glaucicolella* Wood, 1892

2690 [578]. *Coleophora otidipennella* (Hübner, [1817])

2692 [584]. *Coleophora alticolella* Zeller, 1849

2693 [581]. *Coleophora taeniipennella* Herrich-Schäffer, 1855

2696 [580]. *Coleophora sylvaticella* Wood, 1892

2697 [552]. *Coleophora lassella* Staudinger, 1859

2701 [585]. *Coleophora maritimella* Newman, 1873

2707a [564]. *Coleophora virgaureae* Stainton, 1857

Coleophora obscenella Herrich-Schäffer, 1855 misidentification

2712 [561]. *Coleophora therinella* Tengström, 1848

[2716 [562]. *Coleophora asteris* Mühlig, 1864]

2717 [565]. *Coleophora saxicolella* (Duponchel, [1843])

[2721 [566]. *Coleophora sternipennella* (Zetterstedt, 1839)**]**

2729 [568]. *Coleophora versurella* Zeller, 1849

2737 [573]. *Coleophora atriplicis* Meyrick, [1928]

2738 [570]. *Coleophora pappiferella* Hofmann, 1869

2786 [559]. *Coleophora peribenanderi* Toll, 1943

2792 [558]. *Coleophora ramosella* Zeller, 1849

2793 [556]. *Coleophora trochilella* (Duponchel, [1843])

2809 [553]. *Coleophora striatipennella* Nylander, 1848

2829 [555]. *Coleophora follicularis* (Vallot, 1802)

2837 [567]. *Coleophora adspersella* Benander, 1939

2850 [560]. *Coleophora paripennella* Zeller, 1839

2858 [588]. *Coleophora salicorniae* Heinemann and Wocke, 1876

MOMPHIDAE

2876 [880]. *Mompha langiella* (Hübner, 1796)

2878 [881]. *Mompha terminella* (Humphreys and Westwood, 1845)

2879 [882]. *Mompha locupletella* ([Denis and Schiffermüller], 1775)

2880 [883]. *Mompha raschkiella* (Zeller, 1839)

***2883 [885].** *Mompha conturbatella* (Hübner, [1819])

2884 [886]. *Mompha ochraceella* (Curtis, 1839)

***2885 [887].** *Mompha lacteella* (Stephens, 1834)

2886 [888]. *Mompha propinquella* (Stainton, 1851)

2891 [892]. *Mompha subbistrigella* (Haworth, 1828)

2892 [893]. *Mompha epilobiella* ([Denis and Schiffermüller], 1775)

BLASTOBASIDAE

***2904a [874].** *Blastobasis lacticolella* Rebel, 1940

Blastobasis decolorella (Wollaston, 1858) misidentification

2905 [873]. *Blastobasis adustella* Walsingham, 1894

Blastobasis lignea Walsingham, 1894 misidentification

AUTOSTICHIDAE

[2939 [871]. *Oegoconia deauratella* (Herrich-Schäffer, 1854)]

2941 [870]. *Oegoconia quadripuncta* (Haworth, 1828)

LYPUSIDAE

3055 [660]. *Pseudatemelia josephinae* (Toll, 1956)

COSMOPTERIGIDAE

***3095 [908].** *Sorhagenia rhamniella* (Zeller, 1839)

3098 [909]. *Sorhagenia lophyrella* (Douglas, 1846)

3104 [899]. *Pancalia leuwenhoekella* (Linnaeus, 1761)

3105 [900]. *Pancalia schwarzella* (Fabricius, 1798)

3154 [898]. *Limnaecia phragmitella* Stainton, 1851

3165 [896]. *Cosmopterix orichalcea* Stainton, 1861

3170 [897]. *Cosmopterix lienigiella* Zeller, 1846

GELECHIIDAE

3230 [752]. *Aristotelia ericinella* (Zeller, 1839)

[3231 [751]. *Aristotelia subdecurtella* (Stainton, 1859)**]**

[3242 [746]. *Chrysoesthia drurella* (Fabricius, 1775)]

3244 [747]. *Chrysoesthia sexguttella* (Thunberg, 1794)

3272 [725]. *Metzneria aestivella* (Zeller, 1839)

3280 [726]. *Metzneria metzneriella* (Stainton, 1851)

3295 [748]. *Ptocheuusa paupella* (Zeller, 1847)

3312 [728]. *Monochroa cytisella* (Curtis, 1837)

3315 [735]. *Monochroa tenebrella* (Hübner, [1817])

3323 [742]. *Monochroa lutulentella* (Zeller, 1839)

3324 [736]. *Monochroa lucidella* (Stephens, 1834)

***3327 [737].** *Monochroa palustrellus* (Douglas, 1850)

3331 [741]. *Monochroa suffusella* (Douglas, 1850)

3339 [733]. *Eulamprotes wilkella* (Linnaeus, 1758)

3344 [732]. *Eulamprotes unicolorella* (Duponchel, [1843])

3345 [731]. *Eulamprotes atrella* ([Denis and Schiffermüller], 1775)

3347 [731a]. *Eulamprotes immaculatella* (Douglas, 1850)

3372 [788]. *Bryotropha politella* (Stainton, 1851)

3373 [787]. *Bryotropha terrella* ([Denis and Schiffermüller], 1775)

3374 [786]. *Bryotropha desertella* (Douglas, 1850)

3383 [789]. *Bryotropha domestica* (Haworth, 1828)

3384 [782]. *Bryotropha senectella* (Zeller, 1839)

3386 [780]. *Bryotropha similis* (Stainton, 1854)

3387 [778]. *Bryotropha umbrosella* (Zeller, 1839)

Synonym *Bryotropha mundella* (Douglas, 1850)

3389 [779]. *Bryotropha affinis* (Haworth, 1828)

***3400 [758].** *Recurvaria leucatella* (Clerck, 1759)

3404 [760]. *Exoteleia dodecella* (Linnaeus, 1758)

3407 [755]. *Stenolechia gemmella* (Linnaeus, 1758)

3415 [765]. *Teleiodes vulgella* ([Denis and Schiffermüller], 1775)

***3419 [774].** *Teleiodes luculella* (Hübner, [1813])

3431 [769]. *Teleiodes wagae* (Nowicki, 1860)

3424 [767]. *Carpatolechia decorella* (Haworth, 1812)

3427 [772]. *Carpatolechia fugitivella* (Zeller, 1839)

3429 [768]. *Carpatolechia notatella* (Hübner, [1813])

3430 [770]. *Carpatolechia proximella* (Hübner, 1796)

3432 [773]. *Pseudotelphusa paripunctella* (Thunberg, 1794)

3448 [776]. *Teleiopsis diffinis* (Haworth, 1828)

3458 [763]. *Xenolechia aethiops* (Humphreys and Westwood, 1845)

3469 [800]. *Gelechia rhombella* ([Denis and Schiffermüller], 1775)

3474 [802a]. *Gelechia sororculella* (Hübner, [1817])

3507 [792]. *Mirificarma mulinella* (Zeller, 1839)

3520 [791]. *Chionodes distinctella* (Zeller, 1839)

3527 [790]. *Chionodes fumatella* (Douglas, 1850)

3549 [794]. *Prolita sexpunctella* (Fabricius, 1794)

3558 [761]. *Athrips tetrapunctella* (Thunberg, 1794)

3559 [762]. *Athrips mouffetella* (Linnaeus, 1758)

3580 [822]. *Scrobipalpa acuminatella* (Sircom, 1850)

3584 [820]. *Scrobipalpa artemisiella* (Treitschke, 1833)

THYME MOTH

3585 [818]. *Scrobipalpa atriplicella* (Fischer von Röslerstamm, [1841])

3592 [819]. *Scrobipalpa costella* (Humphreys and Westwood, 1845)

3609 [812]. *Scrobipalpa instabilella* (Douglas, 1846)

3615 [821]. *Scrobipalpa murinella* (Duponchel, [1843])

3616 [815]. *Scrobipalpa nitentella* (Fuchs, 1902)

3618 [816]. *Scrobipalpa obsoletella* (Fischer von Röslerstamm, [1841])

3619 [814]. *Scrobipalpa ocellatella* (Boyd, 1858)

BEET MOTH

3629 [811]. *Scrobipalpa samadensis* (Pfaffenzeller, 1870)

***3648 [825].** *Phthorimaea operculella* (Zeller, 1873)

POTATO TUBER MOTH

3681 [827]. *Caryocolum alsinella* (Zeller, 1868)

3682 [828]. *Caryocolum viscariella* (Stainton, 1855)

3684 [826]. *Caryocolum vicinella* (Douglas, 1851)

3702 [829]. *Caryocolum marmorea* (Haworth, 1828)

3708 [830]. *Caryocolum fraternella* (Douglas, 1851)

3712 [832]. *Caryocolum blandella* (Douglas, 1852)

3718 [834]. *Caryocolum tricolorella* (Haworth, 1812)

3779 [845]. *Syncopacma sangiella* (Stainton, 1863)

3780 [849]. *Syncopacma cinctella* (Clerck, 1759)

3785 [847]. *Syncopacma taeniolella* (Zeller, 1839)

***3795 [850].** *Syncopacma polychromella* (Rebel, 1902)

3798 [843]. *Aproaerema anthyllidella* (Hübner, [1813])

3804 [853]. *Anacampsis populella* (Clerck, 1759)

3808 [852]. *Anacampsis temerella* (Lienig and Zeller, 1846)

3823 [856]. *Anarsia spartiella* (Schrank, 1802)

3827 [858]. *Hypatima rhomboidella* (Linnaeus, 1758)

3833 [797]. *Neofaculta ericetella* (Geyer, [1832])

3849 [862]. *Dichomeris marginella* (Fabricius, 1781)

JUNIPER WEBBER

3870 [868]. *Helcystogramma rufescens* (Haworth, 1828)

3874 [855]. *Acompsia cinerella* (Clerck, 1759)

ZYGAENIDAE

3956 [163]. *Adscita statices* (Linnaeus, 1758)

FORESTER

3974 [172]. *Zygaena purpuralis* (Brünnich, 1763)

TRANSPARENT BURNET

3998 [169]. *Zygaena filipendulae* (Linnaeus, 1758)

ssp. *sabulosa* Tremewan, 1960

ssp. *stephensi* Dupont, 1900

SIX-SPOT BURNET

3999 [171]. *Zygaena lonicerae* (Scheven, 1777)

ssp. *insularis* Tremewan, 1960

NARROW-BORDERED FIVE-SPOT BURNET

SESIIDAE

4030 [370]. *Sesia apiformis* (Clerck, 1759)

HORNET MOTH

4032 [371]. *Sesia bembeciformis* (Hübner, 1806)

LUNAR HORNET MOTH

4044 [376]. *Synanthedon scoliaeformis* (Borkhausen, 1789)

WELSH CLEARWING

4051 [380]. *Synanthedon formicaeformis* (Esper, 1783)

RED-TIPPED CLEARWING

4064 [373]. *Synanthedon tipuliformis* (Clerck, 1759)

CURRANT CLEARWING

4098 [383]. *Pyropteron muscaeformis* (Esper, 1783)

Synonym *Synansphecia muscaeformis* (Esper, 1783)

THRIFT CLEARWING

COSSIDAE

4151 [162]. *Cossus cossus* (Linnaeus, 1758)

GOAT MOTH

4176 [161]. *Zeuzera pyrina* (Linnaeus, 1761)

LEOPARD MOTH

TORTRICIDAE

4187 [921]. *Phtheochroa inopiana* (Haworth, 1811)

4193 [923]. *Phtheochroa sodaliana* (Haworth, 1811)

4219 [924]. *Hysterophora maculosana* (Haworth, 1811)

4247 [936]. *Cochylimorpha straminea* (Haworth, 1811)

4255 [926]. *Phalonidia manniana* (Fischer von Röslerstamm, 1839)

4256 [932]. *Phalonidia affinitana* (Douglas, 1846)

4263 [929]. *Gynnidomorpha vectisana* (Humphreys and Westwood, 1845)

4264 [927]. *Gynnidomorpha minimana* (Caradja, 1916)

4265 [928]. *Gynnidomorpha permixtana* ([Denis and Schiffermüller], 1775)

4266 [930]. *Gynnidomorpha alismana* (Ragonot, 1883)

4268 [937]. *Agapeta hamana* (Linnaeus, 1758)

4271 [938]. *Agapeta zoegana* (Linnaeus, 1767)

4287 [954]. *Eupoecilia angustana* (Hübner, [1799])

4295 [942]. *Aethes piercei* Obraztsov, 1952

4321 [950]. *Aethes francillana* (Fabricius, 1794)

4326 [945]. *Aethes cnicana* (Westwood, 1854)

4327 [946]. *Aethes rubigana* (Treitschke, 1830)

4334 [959]. *Cochylidia rupicola* (Curtis, 1834)

4347 [968]. *Cochylis nana* (Haworth, 1811)

4349 [963]. *Cochylis flaviciliana* (Westwood, 1854)

4353 [964]. *Cochylis dubitana* (Hübner, [1799])

4355 [966]. *Cochylis atricapitana* (Stephens, 1852)

4358 [967]. *Cochylis pallidana* Zeller, 1847

4365 [960]. *Falseuncaria ruficiliana* (Haworth, 1811)

4370 [1033]. *Tortrix viridana* Linnaeus, 1758

GREEN OAK TORTRIX

4372 [1032]. *Aleimma loeflingiana* (Linnaeus, 1758)

4374 [1037]. *Acleris holmiana* (Linnaeus, 1758)

4375 [1036]. *Acleris forsskaleana* (Linnaeus, 1758)

4376 [1035]. *Acleris bergmanniana* (Linnaeus, 1758)

4377 [1040]. *Acleris caledoniana* (Stephens, 1852)

4378 [1039]. *Acleris comariana* (Lienig and Zeller, 1846)

STRAWBERRY TORTRIX

4379 [1038]. *Acleris laterana* (Fabricius, 1794)

***4380 [1059].** *Acleris abietana* (Hübner, 1822)

4383 [1041]. *Acleris sparsana* ([Denis and Schiffermüller], 1775)

4384 [1042]. *Acleris rhombana* ([Denis and Schiffermüller], 1775)

RHOMBOID TORTRIX

4385 [1062]. *Acleris emargana* (Fabricius, 1775)

***4385a [1062a].** *Acleris effractana* (Hübner, [1799])

4386 [1047]. *Acleris schalleriana* (Linnaeus, 1761)

4389 [1054]. *Acleris cristana* ([Denis and Schiffermüller], 1775)

4390 [1048]. *Acleris variegana* ([Denis and Schiffermüller], 1775)

GARDEN ROSE TORTRIX

4391 [1043]. *Acleris aspersana* (Hübner, [1817])

4394 [1053]. *Acleris hastiana* (Linnaeus, 1758)

4396 [1049]. *Acleris permutana* (Duponchel, 1836)

4397 [1055]. *Acleris hyemana* (Haworth, 1811)

4402 [1044]. *Acleris ferrugana* ([Denis and Schiffermüller], 1775)

4403 [1045]. *Acleris notana* (Donovan, 1806)

4409 [1061]. *Acleris literana* (Linnaeus, 1758)

4412 [1057]. *Acleris rufana* ([Denis and Schiffermüller], 1775)

4439 [1025]. *Tortricodes alternella* ([Denis and Schiffermüller], 1775)

4443 [1029]. *Eana osseana* (Scopoli, 1763)

4462 [1031]. *Eana penziana* (Thunberg, 1791)

ssp. *bellana* (Curtis, 1826)

ssp. *colquhounana* (Barrett, 1884)

4471 [1024]. *Cnephasia incertana* (Treitschke, 1835)

LIGHT GREY TORTRIX

4474 [1020]. *Cnephasia stephensiana* (Doubleday, 1849)

GREY TORTRIX

4477 [1021]. *Cnephasia asseclana* ([Denis and Schiffermüller], 1775)

FLAX TORTRIX

***4482 [1018].** *Cnephasia communana* (Herrich-Schäffer, 1851)

4491 [1019]. *Cnephasia conspersana* Douglas, 1846

[4493 [1016]. *Cnephasia longana* (Haworth, 1811)**]**

4520 [1015]. *Eulia ministrana* (Linnaeus, 1758)

4522 [1011]. *Pseudargyrotoza conwagana* (Fabricius, 1775)

4525 [1010]. *Ditula angustiorana* (Haworth, 1811)

RED-BARRED TORTRIX

4531 [1006]. *Epagoge grotiana* (Fabricius, 1781)

4541 [1008]. *Philedone gerningana* ([Denis and Schiffermüller], 1775)

4547 [1007]. *Capua vulgana* (Frölich, 1828)

4549 [1009]. *Philedonides lunana* (Thunberg, 1784)

4557 [977]. *Archips podana* (Scopoli, 1763)

LARGE FRUIT-TREE TORTRIX

4558 [979]. *Archips crataegana* (Hübner, [1799])

BROWN OAK TORTRIX

4559 [980]. *Archips xylosteana* (Linnaeus, 1758)

VARIEGATED GOLDEN TORTRIX

4560 [981]. *Archips rosana* (Linnaeus, 1758)

ROSE TORTRIX

4564 [983]. *Choristoneura hebenstreitella* (Müller, 1764)

4568 [974]. *Argyrotaenia ljungiana* (Thunberg, 1797)

4574 [1000]. *Ptycholoma lecheana* (Linnaeus, 1758)

4578 [969]. *Pandemis corylana* (Fabricius, 1794)

CHEQUERED FRUIT-TREE TORTRIX

4579 [970]. *Pandemis cerasana* (Hübner, 1786)

BARRED FRUIT-TREE TORTRIX

4580 [972]. *Pandemis heparana* ([Denis and Schiffermüller], 1775)

DARK FRUIT-TREE TORTRIX

4584 [986]. *Syndemis musculana* (Hübner, [1799])

4590 [1002]. *Lozotaenia forsterana* (Fabricius, 1781)

4592 [985]. *Cacoecimorpha pronubana* (Hübner, [1799])

CARNATION TORTRIX

4596 [989]. *Aphelia paleana* (Hübner, [1793])

TIMOTHY TORTRIX

4597 [990]. *Aphelia unitana* (Hübner, [1799])

4604 [988]. *Aphelia viburniana* ([Denis and Schiffermüller], 1775)

Aphelia viburnana ([Denis and Schiffermüller], 1775) misspelling

BILBERRY TORTRIX

4616 [991]. *Clepsis senecionana* (Hübner, [1819])

4618 [992]. *Clepsis rurinana* (Linnaeus, 1758)

4623 [993]. *Clepsis spectrana* (Treitschke, 1830)

CYCLAMEN TORTRIX

4629 [994]. *Clepsis consimilana* (Hübner, [1817])

4632 [998]. *Epiphyas postvittana* (Walker, 1863)

LIGHT BROWN APPLE MOTH

4642 [1013]. *Olindia schumacherana* (Fabricius, 1787)

4656 [1110]. *Bactra furfurana* (Haworth, 1811)

4655 [1111]. *Bactra lancealana* (Hübner, [1799])

4659 [1112]. *Bactra robustana* (Christoph, 1872)

***4660 [1112a].** *Bactra venosana* (Zeller, 1847)

4667 [1099]. *Endothenia marginana* (Haworth, 1811)

***4669 [1101].** *Endothenia ustulana* (Haworth, 1811)

4672 [1103]. *Endothenia ericetana* (Humphreys and Westwood, 1845)

Synonym *Endothenia trifoliana* (Herrich-Schäffer, 1851)

4673 [1104]. *Endothenia quadrimaculana* (Haworth, 1811)

4680 [1113]. *Eudemis profundana* ([Denis and Schiffermüller], 1775)

4692 [1089]. *Apotomis semifasciana* (Haworth, 1811)

4700 [1092]. *Apotomis turbidana* Hübner, [1825]

4701 [1093]. *Apotomis betuletana* (Haworth, 1811)

4703 [1094]. *Apotomis capreana* (Hübner, [1817])

4706 [1095]. *Apotomis sororculana* (Zetterstedt, 1839)

4711 [1087]. *Orthotaenia undulana* ([Denis and Schiffermüller], 1775)

4714 [1083]. *Hedya nubiferana* (Haworth, 1811)

MARBLED ORCHARD TORTRIX

4715 [1082]. *Hedya pruniana* (Hübner, [1799])

PLUM TORTRIX

4717 [1084]. *Hedya ochroleucana* (Frölich, 1828)

4719 [1085]. *Metendothenia atropunctana* (Zetterstedt, 1839)

[4721 [1065]. *Celypha rufana* (Scopoli, 1763)**]**

4722 [1063]. *Celypha striana* ([Denis and Schiffermüller], 1775)

4723 [1064]. *Celypha rosaceana* Schläger, 1847

4728 [1067]. *Celypha cespitana* (Hübner, [1817])

4731 [1076]. *Celypha lacunana* ([Denis and Schiffermüller], 1775)

4733 [1068]. *Celypha rivulana* (Scopoli, 1763)

4735 [1069]. *Celypha aurofasciana* (Haworth, 1811)

4744 [1073]. *Phiaris schulziana* (Fabricius, 1776)

Synonym *Olethreutes schulziana* (Fabricius, 1776)

4749 [1075]. *Phiaris micana* ([Denis and Schiffermüller], 1775)

Synonym *Olethreutes olivana* (Treitschke, 1830)

4750 [1074]. *Phiaris palustrana* (Lienig and Zeller, 1846)

Synonym *Olethreutes palustrana* (Lienig and Zeller, 1846)

4765 [1071]. *Argyroploce arbutella* (Linnaeus, 1758)

Synonym *Olethreutes arbutella* (Linnaeus, 1758)

4774 [1070]. *Stictea mygindiana* ([Denis and Schiffermüller], 1775)

Synonym *Olethreutes mygindiana* ([Denis and Schiffermüller], 1775)

4776 [1080]. *Olethreutes arcuella* (Clerck, 1759)

4778 [1079]. *Piniphila bifasciana* (Haworth, 1811)

***4793 [1108].** *Lobesia abscisana* (Doubleday, 1849)

4794 [1106]. *Lobesia reliquana* (Hübner, [1825])

4806 [1109]. *Lobesia littoralis* (Humphreys and Westwood, 1845)

4810 [1189]. *Eriopsela quadrana* (Hübner, [1813])

4826 [1162]. *Rhopobota myrtillana* (Humphreys and Westwood, 1845)

4827 [1161]. *Rhopobota stagnana* ([Denis and Schiffermüller], 1775)

4829 [1159]. *Rhopobota naevana* (Hübner, [1817])

HOLLY TORTRIX

4831 [1205]. *Spilonota ocellana* ([Denis and Schiffermüller], 1775)

BUD MOTH

4832 [1205a]. *Spilonota laricana* (Heinemann, 1863)

4838 [1153]. *Epinotia sordidana* (Hübner, [1824])

4839 [1154]. *Epinotia caprana* (Fabricius, 1798)

4840 [1151]. *Epinotia trigonella* (Linnaeus, 1758)

4842 [1155]. *Epinotia brunnichana* (Linnaeus, 1767)

4843 [1152]. *Epinotia maculana* (Fabricius, 1775)

4844 [1156]. *Epinotia solandriana* (Linnaeus, 1758)

4845 [1150]. *Epinotia abbreviana* (Fabricius, 1794)

4847 [1141]. *Epinotia nemorivaga* (Tengström, [1848])

4849 [1144]. *Epinotia signatana* (Douglas, 1845)

4850 [1147]. *Epinotia cruciana* (Linnaeus, 1761)

WILLOW TORTRIX

4852 [1148]. *Epinotia mercuriana* (Frölich, 1828)

4853 [1136]. *Epinotia immundana* (Fischer von Röslerstamm, 1839)

4857 [1149]. *Epinotia crenana* (Hübner, [1817])

4858 [1145]. *Epinotia nanana* (Treitschke, 1835)

4863 [1132]. *Epinotia subocellana* (Donovan, 1806)

4864 [1137]. *Epinotia tetraquetrana* (Haworth, 1811)

***4866 [1130].** *Epinotia pygmaeana* (Hübner, [1799])

4867 [1131]. *Epinotia subsequana* (Haworth, 1811)

4869 [1139]. *Epinotia tenerana* ([Denis and Schiffermüller], 1775)

NUT BUD MOTH

4870 [1134]. *Epinotia ramella* (Linnaeus, 1758)

4872 [1146]. *Epinotia rubiginosana* (Herrich-Schäffer, 1851)

4875 [1142]. *Epinotia tedella* (Clerck, 1759)

4876 [1143]. *Epinotia fraternana* (Haworth, 1811)

4877 [1133]. *Epinotia bilunana* (Haworth, 1811)

4878 [1138]. *Epinotia nisella* (Clerck, 1759)

4882 [1166]. *Zeiraphera griseana* (Hübner, [1799])

LARCH TORTRIX

4884 [1163]. *Zeiraphera ratzeburgiana* (Saxesen, 1840)

4885 [1165]. *Zeiraphera isertana* (Fabricius, 1794)

4887 [1157]. *Crocidosema plebejana* Zeller, 1847

4926 [1202]. *Eucosma obumbratana* (Lienig and Zeller, 1846)

4932 [1201]. *Eucosma cana* (Haworth, 1811)

4935 [1200]. *Eucosma hohenwartiana* ([Denis and Schiffermüller], 1775)

4943 [1197]. *Eucosma campoliliana* ([Denis and Schiffermüller], 1775)

[4945 [1194]. *Eucosma aemulana* (Schläger, 1849)]

***4948 [1193].** *Eucosma tripoliana* (Barrett, 1880)

4966 [1190]. *Eucosma aspidiscana* (Hübner, [1817])

4985 [1169]. *Gypsonoma dealbana* (Frölich, 1828)

4987 [1168]. *Gypsonoma sociana* (Haworth, 1811)

4989 [1167]. *Gypsonoma aceriana* (Duponchel, [1843])

4993 [1186]. *Epiblema sticticana* (Fabricius, 1794)

4994 [1184]. *Epiblema scutulana* ([Denis and Schiffermüller], 1775)

4995 [1184a]. *Epiblema cirsiana* (Zeller, 1843)

4999 [1187]. *Epiblema costipunctana* (Haworth, 1811)

5002 [1182]. *Epiblema turbidana* (Treitschke, 1835)

5019 [1174]. *Notocelia cynosbatella* (Linnaeus, 1758)

Synonym *Epiblema cynosbatella* (Linnaeus, 1758)

5020 [1180]. *Notocelia tetragonana* (Stephens, 1834)

Synonym *Epiblema tetragonana* (Stephens, 1834)

5021 [1175]. *Notocelia uddmanniana* (Linnaeus, 1758)

Synonym *Epiblema uddmanniana* (Linnaeus, 1758)

BRAMBLE SHOOT MOTH

5022 [1178]. *Notocelia roborana* ([Denis and Schiffermüller], 1775)

Synonym *Epiblema roborana* ([Denis and Schiffermüller], 1775)

5024 [1179]. *Notocelia incarnatana* (Hübner, [1800])

Synonym *Epiblema incarnatana* (Hübner, [1800])

5025 [1177]. *Notocelia rosaecolana* (Doubleday, 1850)

Synonym *Epiblema rosaecolana* (Doubleday, 1850)

5026 [1176]. *Notocelia trimaculana* (Haworth, 1811)

Synonym *Epiblema trimaculana* (Haworth, 1811)

5028 [1208]. *Pseudococcyx posticana* (Zetterstedt, 1839)

5041 [1206]. *Clavigesta sylvestrana* (Curtis, 1850)

***5042 [1207].** *Clavigesta purdeyi* (Durrant, 1911)

PINE LEAF-MINING MOTH

5044 [1210]. *Rhyacionia buoliana* ([Denis and Schiffermüller], 1775)

PINE SHOOT MOTH

5048 [1212]. *Rhyacionia pinivorana* (Lienig and Zeller, 1846)

SPOTTED SHOOT MOTH

A [not allocated] [1215]. *Thaumatotibia leucotreta* (Meyrick, 1913)

FALSE CODLING MOTH

5055 [1216]. *Enarmonia formosana* (Scopoli, 1763)

CHERRY-BARK MOTH

5057 [1117]. *Ancylis unguicella* (Linnaeus, 1758)

5058 [1118]. *Ancylis uncella* ([Denis and Schiffermüller], 1775)

5061 [1122]. *Ancylis obtusana* (Haworth, 1811)

5062 [1116]. *Ancylis comptana* (Frölich, 1828)

5064 [1119]. *Ancylis geminana* (Donovan, 1806)

5065 [1119b]. *Ancylis subarcuana* (Douglas, 1847)

***5066 [1119a].** *Ancylis diminutana* (Haworth, 1811)

5069 [1128]. *Ancylis myrtillana* (Treitschke, 1830)

5073 [1126]. *Ancylis badiana* ([Denis and Schiffermüller], 1775)

5074 [1115]. *Ancylis achatana* ([Denis and Schiffermüller], 1775)

5076 [1120]. *Ancylis mitterbacheriana* ([Denis and Schiffermüller], 1775)

5084 [1241]. *Grapholita compositella* (Fabricius, 1775)

5091 [1242]. *Grapholita internana* (Guenée, 1845)

5098 [1251]. *Grapholita jungiella* (Clerck, 1759)

5100 [1252]. *Grapholita lunulana* ([Denis and Schiffermüller], 1775)

5102 [1247]. *Grapholita funebrana* Treitschke, 1835

PLUM FRUIT MOTH

5103 [1246]. *Grapholita tenebrosana* (Duponchel, [1843])

5104 [1245]. *Grapholita janthinana* (Duponchel, 1835)

5107 [1248]. *Grapholita molesta* (Busck, 1916)

ORIENTAL FRUIT MOTH

5111 [1257]. *Cydia nigricana* (Fabricius, 1794)

PEA MOTH

5119 [1255]. *Cydia ulicetana* (Haworth, 1811)

Synonym *Cydia succedana* ([Denis and Schiffermüller], 1775)

5128 [1220]. *Cydia microgrammana* (Guenée, 1845)

5136 [1268]. *Cydia coniferana* (Saxesen, 1840)

5144 [1261]. *Cydia pomonella* (Linnaeus, 1758)

CODLING MOTH

5152 [1260]. *Cydia splendana* (Hübner, [1799])

5153 [1259]. *Cydia fagiglandana* (Zeller, 1841)

***5154 [1262].** *Cydia amplana* (Hübner, [1800])

A [not allocated] [1262a]. *Cydia deshaisiana* (Lucas, 1858)

JUMPING BEAN MOTH

5167 [1272]. *Pammene aurana* (Fabricius, 1775)

5168 [1271]. *Pammene gallicana* (Guenée, 1845)

5173 [1236]. *Pammene fasciana* (Linnaeus, 1761)

5175 [1223]. *Pammene splendidulana* (Guenée, 1845)

***5181 [1227].** *Pammene giganteana* (Peyerimhoff, 1863)

Synonym *Pammene inquilana* Fletcher, 1938

5182 [1228]. *Pammene argyrana* (Hübner, [1799])

***5184 [1229].** *Pammene albuginana* (Guenée, 1845)

***5186 [1225].** *Pammene obscurana* (Stephens, 1834)

5190 [1239]. *Pammene rhediella* (Clerck, 1759)

FRUITLET MINING TORTRIX

5192 [1232]. *Pammene populana* (Fabricius, 1787)

5193 [1231]. *Pammene spiniana* (Duponchel, [1843])

5196 [1234]. *Pammene regiana* (Zeller, 1849)

***5200 [1238].** *Pammene ochsenheimeriana* (Lienig and Zeller, 1846)

***5205 [1237].** *Pammene germmana* (Hübner, [1799])

5208 [1222]. *Strophedra nitidana* (Fabricius, 1794)

5214 [1285]. *Dichrorampha plumbana* (Scopoli, 1763)

5218 [1287]. *Dichrorampha aeratana* (Pierce and Metcalfe, 1915)

5226 [1280]. *Dichrorampha consortana* Stephens, 1852

5232 [1279]. *Dichrorampha acuminatana* (Lienig and Zeller, 1846)

5239 [1281]. *Dichrorampha simpliciana* (Haworth, 1811)

5246 [1284]. *Dichrorampha vancouverana* McDunnough, 1935

Synonym *Dichrorampha gueneeana* Obraztsov, 1953

5248 [1274]. *Dichrorampha alpinana* (Treitschke, 1830)

5249 [1273]. *Dichrorampha petiverella* (Linnaeus, 1758)

5251 [1276]. *Dichrorampha plumbagana* (Treitschke, 1830)

5255 [1283]. *Dichrorampha montanana* (Duponchel, [1843])

CHOREUTIDAE

5269 [385]. *Anthophila fabriciana* (Linnaeus, 1767)

5271 [388]. *Prochoreutis myllerana* (Fabricius, 1794)

5272 [387]. *Prochoreutis sehestediana* (Fabricius, 1776)

5279 [386]. *Tebenna micalis* (Mann, 1857)

SCHRECKENSTEINIIDAE

5291 [485]. *Schreckensteinia festaliella* (Hübner, [1819])

EPERMENIIDAE

5296 [478]. *Phaulernis fulviguttella* (Zeller, 1839)

***5302 [484].** *Epermenia aequidentellus* (E. Hofmann, 1867)

5303 [483]. *Epermenia chaerophyllella* (Goeze, 1783)

***5305 [481].** *Epermenia falciformis* (Haworth, 1828)

ALUCITIDAE

5323 [1288]. *Alucita hexadactyla* Linnaeus, 1758

TWENTY-PLUME MOTH

PTEROPHORIDAE

5368 [1501]. *Platyptilia gonodactyla* ([Denis and Schiffermüller], 1775)

5369 [1500]. *Platyptilia calodactyla* ([Denis and Schiffermüller], 1775)

5371 [1502]. *Platyptilia isodactylus* (Zeller, 1852)

5374 [1499]. *Platyptilia tesseradactyla* (Linnaeus, 1761)

5377 [1504]. *Gillmeria pallidactyla* (Haworth, 1811)

Synonym *Platyptilia pallidactyla* (Haworth, 1811)

5381 [1497]. *Amblyptilia acanthadactyla* (Hübner, [1813])

5382 [1498]. *Amblyptilia punctidactyla* (Haworth, 1811)

5390 [1509]. *Stenoptilia pterodactyla* (Linnaeus, 1761)

5397 [1508]. *Stenoptilia bipunctidactyla* (Scopoli, 1763)

5405 [1506]. *Stenoptilia millieridactyla* (Bruand, 1861)

5426 [1507]. *Stenoptilia zophodactylus* (Duponchel, 1840)

5436 [1495]. *Marasmarcha lunaedactyla* (Haworth, 1811)

5443 [1490]. *Oxyptilus parvidactylus* (Haworth, 1811)

***5454 [1492].** *Crombrugghia laetus* (Zeller, 1847)

***5459 [1494].** *Capperia britanniodactylus* (Gregson, 1867)

5485 [1513]. *Pterophorus pentadactyla* (Linnaeus, 1758)

WHITE PLUME MOTH

5500 [1511]. *Merrifieldia tridactyla* (Linnaeus, 1758)

Synonym *Pterophorus fuscolimbatus* Duponchel, 1844

Pterophorus icterodactylus Mann, 1855 misidentification

Synonym *Alucita phillipsi* Huggins, 1955

5501 [1510]. *Merrifieldia leucodactyla* ([Denis and Schiffermüller], 1775)

5528 [1523]. *Oidaematophorus lithodactyla* (Treitschke, 1833)

5534 [1522]. *Hellinsia tephradactyla* (Hübner, [1813])

Synonym *Euleioptilus tephradactyla* (Hübner, [1813])

5550 [1517]. *Adaina microdactyla* (Hübner, [1813])

5552 [1524]. *Emmelina monodactyla* (Linnaeus, 1758)

PYRALIDAE

5569 [1428]. *Aphomia sociella* (Linnaeus, 1758)

BEE MOTH

5587 [1426]. *Achroia grisella* (Fabricius, 1794)

LESSER WAX MOTH

5589 [1425]. *Galleria mellonella* (Linnaeus, 1758)

WAX MOTH

5627 [1417]. *Pyralis farinalis* (Linnaeus, 1758)

MEAL MOTH

5633 [1421]. *Aglossa pinguinalis* (Linnaeus, 1758)

LARGE TABBY

***5652 [1413].** *Hypsopygia costalis* (Fabricius, 1775)

GOLD TRIANGLE

***5658 [1415].** *Hypsopygia glaucinalis* (Linnaeus, 1758)

Synonym *Orthopygia glaucinalis* (Linnaeus, 1758)

5668 [1433]. *Cryptoblabes bistriga* (Haworth, 1811)

5684 [1451]. *Matilella fusca* (Haworth, 1811)

Synonym *Pyla fusca* (Haworth, 1811)

5686 [1463]. *Pempeliella ornatella* ([Denis and Schiffermüller], 1775)

5690 [1462]. *Delplanqueia dilutella* ([Denis and Schiffermüller], 1775)

Synonym *Pempeliella dilutella* ([Denis and Schiffermüler], 1775)

***5751 [1441].** *Oncocera semirubella* (Scopoli, 1763)

5767 [1442]. *Pempelia palumbella* ([Denis and Schiffermüller], 1775)

5784 [1454]. *Dioryctria abietella* ([Denis and Schiffermüller], 1775)

5796 [1452]. *Phycita roborella* ([Denis and Schiffermüller], 1775)

***5848 [1465].** *Nephopterix angustella* (Hübner, 1796)

5856 [1439]. *Acrobasis advenella* (Zincken, 1818)

Synonym *Trachycera advenella* (Zincken, 1818)

5860 [1440]. *Acrobasis marmorea* (Haworth, 1811)

Synonym *Trachycera marmorea* (Haworth, 1811)

5869 [1437]. *Acrobasis consociella* (Hübner, [1813])

5873 [1486]. *Apomyelois bistriatella* (Hulst, 1887)

ssp. *subcognata* (Ragonot, 1887)

5898 [1458]. *Myelois circumvoluta* (Fourcroy, 1785)

THISTLE ERMINE

6057 [1467]. *Ancylosis oblitella* (Zeller, 1848)

6072 [1481]. *Homoeosoma sinuella* (Fabricius, 1794)

6079 [1480]. *Homoeosoma nebulella* ([Denis and Schiffermüller], 1775)

[6082 [1482]. *Homoeosoma nimbella* (Duponchel, 1837)]

6086 [1485]. *Phycitodes maritima* (Tengström, [1848])

6087 [1483]. *Phycitodes binaevella* (Hübner, [1813])

6090 [1484]. *Phycitodes saxicola* (Vaughan, 1870)

6102 [1479]. *Plodia interpunctella* (Hübner, [1813])

INDIAN MEAL MOTH

6105 [1475]. *Ephestia kuehniella* Zeller, 1879

MEDITERRANEAN FLOUR MOTH

6112 [1473]. *Ephestia elutella* (Hübner, 1796)

CACAO MOTH

6118 [1477]. *Cadra figulilella* (Gregson, 1871)

Synonym *Ephestia figulilella* (Gregson, 1871)

6119 [1476]. *Cadra cautella* (Walker, 1863)

Synonym *Ephestia cautella* (Walker, 1863)

DRIED CURRANT MOTH

6120 [1478]. *Cadra calidella* (Guenée, 1845)

Synonym *Ephestia calidella* (Guenée, 1845)

DRIED FRUIT MOTH

6123 [1432]. *Anerastia lotella* (Hübner, [1813])

CRAMBIDAE

6165 [1332]. *Scoparia subfusca* Haworth, 1811

6166 [1334a]. *Scoparia basistrigalis* Knaggs, 1866

6168 [1334]. *Scoparia ambigualis* (Treitschke, 1829)

6172 [1333]. *Scoparia pyralella* ([Denis and Schiffermüller], 1775)

6180 [1338]. *Eudonia lacustrata* (Panzer, 1804)

Synonym *Dipleurina lacustrata* (Panzer, 1804)

6184 [1342]. *Eudonia angustea* (Curtis, 1827)

6187 [1341]. *Eudonia lineola* (Curtis, 1827)

6189 [1343]. *Eudonia delunella* (Stainton, 1849)

6193 [1340]. *Eudonia truncicolella* (Stainton, 1849)

6195 [1344]. *Eudonia mercurella* (Linnaeus, 1758)

6199 [1336]. *Eudonia pallida* (Curtis, 1827)

6207 [1289]. *Euchromius ocellea* (Haworth, 1811)

6222 [1290]. *Chilo phragmitella* (Hübner, 1805)

6241 [1293]. *Chrysoteuchia culmella* (Linnaeus, 1758)

6243 [1294]. *Crambus pascuella* (Linnaeus, 1758)

6245 [1297]. *Crambus uliginosellus* Zeller, 1850

***6246 [1298].** *Crambus ericella* (Hübner, [1813])

6251 [1301]. *Crambus lathoniellus* (Zincken, 1817)

6253 [1302]. *Crambus perlella* (Scopoli, 1763)

6258 [1305]. *Agriphila tristella* ([Denis and Schiffermüller], 1775)

6260 [1306]. *Agriphila inquinatella* ([Denis and Schiffermüller], 1775)

6264 [1307]. *Agriphila latistria* (Haworth, 1811)

6266 [1303]. *Agriphila selasella* (Hübner, [1813])

6267 [1304]. *Agriphila straminella* ([Denis and Schiffermüller], 1775)

6275 [1309]. *Agriphila geniculea* (Haworth, 1811)

6301 [1313]. *Catoptria pinella* (Linnaeus, 1758)

6304 [1314]. *Catoptria margaritella* ([Denis and Schiffermüller], 1775)

***6314 [1316].** *Catoptria falsella* ([Denis and Schiffermüller], 1775)

***6367 [1324].** *Pediasia aridella* (Thunberg, 1788)

6377 [1325]. *Platytes alpinella* (Hübner, [1813])

6393 [1329]. *Donacaula forficella* (Thunberg, 1794)

6394 [1330]. *Donacaula mucronella* ([Denis and Schiffermüller], 1775)

6416 [1345]. *Elophila nymphaeata* (Linnaeus, 1758)

BROWN CHINA-MARK

6421 [1331]. *Acentria ephemerella* ([Denis and Schiffermüller], 1775)

WATER VENEER

6423 [1354]. *Cataclysta lemnata* (Linnaeus, 1758)

SMALL CHINA-MARK

6425 [1348]. *Parapoynx stratiotata* (Linnaeus, 1758)

RINGED CHINA-MARK

6431 [1350]. *Nymphula nitidulata* (Hufnagel, 1767)

Synonym *Nymphula stagnata* (Donovan, 1806)

BEAUTIFUL CHINA-MARK

6497 [1356]. *Evergestis forficalis* (Linnaeus, 1758)

GARDEN PEBBLE

***6499 [1357].** *Evergestis extimalis* (Scopoli, 1763)

6501 [1358]. *Evergestis pallidata* (Hufnagel, 1767)

***6521 [1360].** *Hellula undalis* (Fabricius, 1781)

6531 [1395]. *Udea ferrugalis* (Hübner, 1796)

RUSTY DOT PEARL

6538 [1388]. *Udea lutealis* (Hübner, 1809)

6541 [1390]. *Udea prunalis* ([Denis and Schiffermüller], 1775)

6557 [1392]. *Udea olivalis* ([Denis and Schiffermüller], 1775)

***6550 [1393].** *Udea uliginosalis* (Stephens, 1834)

6563 [1386]. *Anania fuscalis* ([Denis and Schiffermüller], 1775)

Synonym *Opsibotys fuscalis* ([Denis and Schiffermüller], 1775)

6595 [1367]. *Pyrausta cingulata* (Linnaeus, 1758)

6599 [1364]. *Pyrausta sanguinalis* (Linnaeus, 1767)

6601 [1365]. *Pyrausta despicata* (Scopoli, 1763)

6605 [1362]. *Pyrausta purpuralis* (Linnaeus, 1758)

6606 [1363]. *Pyrausta ostrinalis* (Hübner, 1796)

***6619 [1369].** *Uresiphita gilvata* (Fabricius, 1794)

Synonym *Uresiphita polygonalis* (Hübner, 1796)

6629 [1377]. *Anania lancealis* ([Denis and Schiffermüller], 1775)

Synonym *Perinephela lancealis* ([Denis and Schiffermüller], 1775)

6631 [1378]. *Anania coronata* (Hufnagel, 1767)

Synonym *Phlyctaenia coronata* (Hufnagel, 1767)

6649 [1375]. *Ostrinia nubilalis* (Hübner, 1796)

EUROPEAN CORN-BORER

6652 [1385]. *Anania crocealis* (Hübner, 1796)

Synonym *Ebulea crocealis* (Hübner, 1796)

6656 [1381]. *Anania funebris* (Ström, 1768)

6658 [1376]. *Anania hortulata* (Linnaeus, 1758)

Synonym *Eurrhypara hortulata* (Linnaeus, 1758)

SMALL MAGPIE

6660 [1373]. *Paratalanta pandalis* (Hübner, [1825])

BORDERED PEARL

***6686 [1403a].** *Duponchelia fovealis* Zeller, 1847

6667 [1405]. *Pleuroptya ruralis* (Scopoli, 1763)

MOTHER OF PEARL

6677 [1397]. *Mecyna asinalis* (Hübner, [1819])

6690 [1408]. *Palpita vitrealis* (Rossi, 1794)

***6704 [1400].** *Antigastra catalaunalis* (Duponchel, 1833)

6719 [1398]. *Nomophila noctuella* ([Denis and Schiffermüller], 1775)

RUSH VENEER

LASIOCAMPIDAE

6728 [1631]. *Poecilocampa populi* (Linnaeus, 1758)

DECEMBER MOTH

6731 [1632]. *Trichiura crataegi* (Linnaeus, 1758)

PALE EGGAR

6738 [1633]. *Eriogaster lanestris* (Linnaeus, 1758)

SMALL EGGAR

6743 [1634]. *Malacosoma neustria* (Linnaeus, 1758)

LACKEY

6752 [1637]. *Lasiocampa quercus* (Linnaeus, 1758)

OAK EGGAR/NORTHERN EGGAR

6755 [1638]. *Macrothylacia rubi* (Linnaeus, 1758)

FOX MOTH

6767 [1640]. *Euthrix potatoria* (Linnaeus, 1758)

DRINKER

SATURNIIDAE

6794 [1643]. *Saturnia pavonia* (Linnaeus, 1758)

EMPEROR

SPHINGIDAE

A [not allocated**] [1971].** *Agrius cingulata* (Fabricius, 1775)

PINK-SPOTTED HAWK-MOTH

***6819 [1979].** *Mimas tiliae* (Linnaeus, 1758)

LIME HAWK-MOTH

6822 [1980]. *Smerinthus ocellata* (Linnaeus, 1758)

EYED HAWK-MOTH

6824 [1981]. *Laothoe populi* (Linnaeus, 1758)

POPLAR HAWK-MOTH

6828 [1972]. *Agrius convolvuli* (Linnaeus, 1758)

CONVOLVULUS HAWK-MOTH

6830 [1973]. *Acherontia atropos* (Linnaeus, 1758)

DEATH'S-HEAD HAWK-MOTH

6839 [1982]. *Hemaris tityus* (Linnaeus, 1758)

NARROW-BORDERED BEE HAWK-MOTH

6843 [1984]. *Macroglossum stellatarum* (Linnaeus, 1758)

HUMMING-BIRD HAWK-MOTH

6845 [1985]. *Daphnis nerii* (Linnaeus, 1758)

OLEANDER HAWK-MOTH

6855 [1987]. *Hyles gallii* (Rottemburg, 1775)

BEDSTRAW HAWK-MOTH

6860 [1990]. *Hyles livornica* (Esper, 1779)

STRIPED HAWK-MOTH

6862 [1991]. *Deilephila elpenor* (Linnaeus, 1758)

ELEPHANT HAWK-MOTH

6863 [1992]. *Deilephila porcellus* (Linnaeus, 1758)

SMALL ELEPHANT HAWK-MOTH

6865 [1993]. *Hippotion celerio* (Linnaeus, 1758)

SILVER-STRIPED HAWK-MOTH

HESPERIIDAE

6879 [1532]. *Erynnis tages* (Linnaeus, 1758)

ssp. *tages* (Linnaeus, 1758)

ssp. *baynesi* Huggins, 1956

DINGY SKIPPER

***6923 [1527].** *Thymelicus lineola* (Ochsenheimer, 1808)

ESSEX SKIPPER

***6924 [1526].** *Thymelicus sylvestris* (Poda, 1761)

SMALL SKIPPER

PAPILIONIDAE

6960 [1539]. *Papilio machaon* Linnaeus, 1758

SWALLOWTAIL

A [not allocated] [1539a]. *Papilio glaucus* Linnaeus, 1758

EASTERN TIGER SWALLOWTAIL

PIERIDAE

6966 [1541]. *Leptidea sinapis* (Linnaeus, 1758)

WOOD WHITE

6967 [....]. *Leptidea juvernica* Williams, 1946

Leptidea reali Reissinger, 1989 misidentification

CRYPTIC WOOD WHITE

6973 [1553]. *Anthocharis cardamines* (Linnaeus, 1758)

ssp. *hibernica* Williams, 1916

ORANGE-TIP

6995 [1549]. *Pieris brassicae* (Linnaeus, 1758)

LARGE WHITE

6998 [1550]. *Pieris rapae* (Linnaeus, 1758)

SMALL WHITE

7000 [1551]. *Pieris napi* (Linnaeus, 1758)

ssp. *britannica* Müller and Kautz, 1939

GREEN-VEINED WHITE

7005 [1552]. *Pontia daplidice* (Linnaeus, 1758)

BATH WHITE

7015 [1545]. *Colias croceus* (Fourcroy, 1785)

CLOUDED YELLOW

[7021 [1543]. *Colias hyale* (Linnaeus, 1758)

PALE CLOUDED YELLOW]

7024 [1546]. *Gonepteryx rhamni* (Linnaeus, 1758)

ssp. *gravesi* Huggins, 1956

BRIMSTONE

LYCAENIDAE

7034 [1561]. *Lycaena phlaeas* (Linnaeus, 1761)

ssp. *hibernica* Goodson, 1948

SMALL COPPER

7036 [1562]. *Lycaena dispar* (Haworth, 1803) extinct

LARGE COPPER

7047 [1556]. *Thecla betulae* (Linnaeus, 1758)

BROWN HAIRSTREAK

7049 [1557]. *Favonius quercus* (Linnaeus, 1758)

synonym *Neozephyrus quercus* (Linnaeus, 1788)

synonym *Quercusia quercus* (Linnaeus, 1788)

PURPLE HAIRSTREAK

7058 [1555]. *Callophrys rubi* (Linnaeus, 1758)

GREEN HAIRSTREAK

7088 [1569]. *Cupido minimus* (Fuessly, 1775)

SMALL BLUE

7097 [1580]. *Celastrina argiolus* (Linnaeus, 1758)

ssp. *britanna* Verity, 1919

HOLLY BLUE

7163 [1574]. *Polyommatus icarus* (Rottemburg, 1775)

ssp. *mariscolore* (Kane, 1893)

COMMON BLUE

NYMPHALIDAE

7202 [1608]. *Argynnis paphia* (Linnaeus, 1758)

SILVER-WASHED FRITILLARY

7204 [1607]. *Argynnis aglaja* (Linnaeus, 1758)

DARK GREEN FRITILLARY

7210 [1603]. *Issoria lathonia* (Linnaeus, 1758)

QUEEN OF SPAIN FRITILLARY

7220 [1601]. *Boloria euphrosyne* (Linnaeus, 1758)

PEARL-BORDERED FRITILLARY

7243 [1590]. *Vanessa atalanta* (Linnaeus, 1758)

RED ADMIRAL

7245 [1591]. *Vanessa cardui* (Linnaeus, 1758)

PAINTED LADY

7246 [1592]. *Vanessa virginiensis* (Drury, 1773)

AMERICAN PAINTED LADY

7248 [1597]. *Aglais io* (Linnaeus, 1758)

Synonym *Inachis io* (Linnaeus, 1758)

PEACOCK

7250 [1593]. *Aglais urticae* (Linnaeus, 1758)

SMALL TORTOISESHELL

7252 [1598]. *Polygonia c-album* (Linnaeus, 1758)

COMMA

7257 [1596]. *Nymphalis antiopa* (Linnaeus, 1758)

Synonym *Aglais antiopa* (Linnaeus, 1758)

CAMBERWELL BEAUTY

7268 [1610]. *Euphydryas aurinia* (Rottemburg, 1775)

MARSH FRITILLARY

7307 [1614]. *Pararge aegeria* (Linnaeus, 1758)

ssp. *tircis* (Godart, 1821)

SPECKLED WOOD

7309 [1615]. *Lasiommata megera* (Linnaeus, 1767)

WALL BROWN

7321 [1628]. *Coenonympha tullia* (Müller, 1764)

ssp. *polydama* (Howarth, 1803)

LARGE HEATH

7334 [1627]. *Coenonympha pamphilus* (Linnaeus, 1758)

ssp. *pamphilus* (Linnaeus, 1758)

SMALL HEATH

7340 [1625]. *Pyronia tithonus* (Linnaeus, 1771)

ssp. *britanniae* (Verity, 1915)

GATEKEEPER

7344 [1629]. *Aphantopus hyperantus* (Linnaeus, 1758)

RINGLET

7350 [1626]. *Maniola jurtina* (Linnaeus, 1758)

ssp. *iernes* Graves, 1930

MEADOW BROWN

7366 [1617]. *Erebia epiphron* (Knoch, 1783)

ssp. *mnemon* (Haworth, 1812) extinct?

MOUNTAIN RINGLET

7436 [1621]. *Hipparchia semele* (Linnaeus, 1758)

ssp. *hibernica* Howarth, 1971

ssp. *clarensis* de Lattin, 1952

GRAYLING

7474 [1630]. *Danaus plexippus* (Linnaeus, 1758)

MILKWEED

DREPANIDAE

7481 [1652]. *Thyatira batis* (Linnaeus, 1758)

PEACH BLOSSOM

7483 [1653]. *Habrosyne pyritoides* (Hufnagel, 1766)

BUFF ARCHES

7486 [1655]. *Tethea or* ([Denis and Schiffermüller], 1775)

ssp. *hibernica* (Turner, 1927)

POPLAR LUTESTRING

7488 [1656]. *Tetheella fluctuosa* (Hübner, 1803)

SATIN LUTESTRING

7490 [1657]. *Ochropacha duplaris* (Linnaeus, 1761)

COMMON LUTESTRING

7498 [1659]. *Achlya flavicornis* (Linnaeus, 1758)

ssp. *galbanus* (Tutt, 1891)

YELLOW HORNED

7501 [1645]. *Falcaria lacertinaria* (Linnaeus, 1758)

SCALLOPED HOOK-TIP

***7503 [1646].** *Watsonalla binaria* (Hufnagel, 1767)

OAK HOOK-TIP

7505 [1647]. *Watsonalla cultraria* (Fabricius, 1775)

BARRED HOOK-TIP

7508 [1648]. *Drepana falcataria* (Linnaeus, 1758)

ssp. *falcataria* (Linnaeus, 1758)

PEBBLE HOOK-TIP

7512 [1651]. *Cilix glaucata* (Scopoli, 1763)

CHINESE CHARACTER

GEOMETRIDAE

7522 [1884]. *Abraxas grossulariata* (Linnaeus, 1758)

MAGPIE

7524 [1885]. *Abraxas sylvata* (Scopoli, 1763)

CLOUDED MAGPIE

7527 [1887]. *Lomaspilis marginata* (Linnaeus, 1758)

CLOUDED BORDER

7530 [1888]. *Ligdia adustata* ([Denis and Schiffermüller], 1775)

SCORCHED CARPET

7539 [1889]. *Macaria notata* (Linnaeus, 1758)

PEACOCK MOTH

7540 [1890]. *Macaria alternata* ([Denis and Schiffermüller], 1775)

SHARP-ANGLED PEACOCK

7542 [1893]. *Macaria liturata* (Clerck, 1759)

TAWNY-BARRED ANGLE

7543 [1897]. *Macaria wauaria* (Linnaeus, 1758)

V-MOTH

7547 [1894]. *Chiasmia clathrata* (Linnaeus, 1758)

ssp. *hugginsi* (Baynes, 1959)

LATTICED HEATH

7594 [1901]. *Cepphis advenaria* (Hübner, 1790)

LITTLE THORN

7596 [1902]. *Petrophora chlorosata* (Scopoli, 1763)

BROWN SILVER-LINE

7606 [1903]. *Plagodis pulveraria* (Linnaeus, 1758)

BARRED UMBER

7607 [1904]. *Plagodis dolabraria* (Linnaeus, 1767)

SCORCHED WING

7613 [1906]. *Opisthograptis luteolata* (Linnaeus, 1758)

BRIMSTONE MOTH

7615 [1907]. *Epione repandaria* (Hufnagel, 1767)

BORDERED BEAUTY

7620 [1909]. *Pseudopanthera macularia* (Linnaeus, 1758)

SPECKLED YELLOW

7630 [1910]. *Apeira syringaria* (Linnaeus, 1758)

LILAC BEAUTY

7632 [1911]. *Ennomos autumnaria* (Werneburg, 1859)

LARGE THORN

7633 [1912]. *Ennomos quercinaria* (Hufnagel, 1767)

AUGUST THORN

7634 [1913]. *Ennomos alniaria* (Linnaeus, 1758)

CANARY-SHOULDERED THORN

***7635 [1914].** *Ennomos fuscantaria* (Haworth, 1809)

DUSKY THORN

7636 [1915]. *Ennomos erosaria* ([Denis and Schiffermüller], 1775)

SEPTEMBER THORN

7641 [1917]. *Selenia dentaria* (Fabricius, 1775)

EARLY THORN

7642 [1918]. *Selenia lunularia* (Hübner, 1788)

LUNAR THORN

7647 [1920]. *Odontopera bidentata* (Clerck, 1759)

SCALLOPED HAZEL

7654 [1921]. *Crocallis elinguaria* (Linnaeus, 1758)

SCALLOPED OAK

7659 [1922]. *Ourapteryx sambucaria* (Linnaeus, 1758)

SWALLOW-TAILED MOTH

7663 [1923]. *Colotois pennaria* (Linnaeus, 1761)

FEATHERED THORN

7665 [1924]. *Angerona prunaria* (Linnaeus, 1758)

ORANGE MOTH

7672 [1926]. *Phigalia pilosaria* ([Denis and Schiffermüller], 1775)

PALE BRINDLED BEAUTY

7674 [1927]. *Lycia hirtaria* (Clerck, 1759)

BRINDLED BEAUTY

7680 [1928]. *Lycia zonaria* ([Denis and Schiffermüller], 1775)

ssp. *britannica* (Harrison, 1912)

BELTED BEAUTY

7685 [1930]. *Biston strataria* (Hufnagel, 1767)

OAK BEAUTY

7686 [1931]. *Biston betularia* (Linnaeus, 1758)

PEPPERED MOTH

7693 [1932]. *Agriopis leucophaearia* ([Denis and Schiffermüller], 1775)

SPRING USHER

7695 [1933]. *Agriopis aurantiaria* (Hübner, [1799])

SCARCE UMBER

7696 [1934]. *Agriopis marginaria* (Fabricius, 1776)

DOTTED BORDER

7699 [1935]. *Erannis defoliaria* (Clerck, 1759)

MOTTLED UMBER

[7724 [1936]. *Menophra abruptaria* (Thunberg, 1792)

WAVED UMBER]

7754 [1937]. *Peribatodes rhomboidaria* ([Denis and Schiffermüller], 1775)

WILLOW BEAUTY

7767 [1938]. *Selidosema brunnearia* (de Villers, 1789)

ssp. *scandinaviaria* Staudinger, 1901

ssp. *tyronensis* Cockayne, 1948

BORDERED GREY

7773 [1939]. *Cleora cinctaria* ([Denis and Schiffermüller], 1775)

ssp. *cinctaria* ([Denis and Schiffermüller], 1775)

RINGED CARPET

7775 [1940]. *Deileptenia ribeata* (Clerck, 1759)

SATIN BEAUTY

7777 [1941]. *Alcis repandata* (Linnaeus, 1758)

MOTTLED BEAUTY

7779 [1942]. *Alcis jubata* (Thunberg, 1788)

DOTTED CARPET

7784 [1944]. *Hypomecis punctinalis* (Scopoli, 1763)

PALE OAK BEAUTY

7790 [1945]. *Cleorodes lichenaria* (Hufnagel, 1767)

BRUSSELS LACE

7796 [1948]. *Ectropis crepuscularia* ([Denis and Schiffermüller], 1775)

Synonym *Ectropis bistortata* (Goeze, 1871)

ENGRAILED

7798 [1949]. *Paradarisa consonaria* (Hübner, [1799])

SQUARE SPOT

7802 [1951]. *Aethalura punctulata* ([Denis and Schiffermüller], 1775)

GREY BIRCH

7804 [1952]. *Ematurga atomaria* (Linnaeus, 1758)

ssp. *atomaria* (Linnaeus, 1758)

COMMON HEATH

7822 [1954]. *Bupalus piniaria* (Linnaeus, 1758)

BORDERED WHITE

7824 [1955]. *Cabera pusaria* (Linnaeus, 1758)

COMMON WHITE WAVE

7826 [1956]. *Cabera exanthemata* (Scopoli, 1763)

COMMON WAVE

7828 [1957]. *Lomographa bimaculata* (Fabricius, 1775)

WHITE-PINION SPOTTED

7829 [1958]. *Lomographa temerata* ([Denis and Schiffermüller], 1775)

CLOUDED SILVER

7834 [1960]. *Theria primaria* (Haworth, 1809)

EARLY MOTH

7836 [1961]. *Campaea margaritaria* (Linnaeus, 1761)

Synonym *Campaea margaritata* (Linnaeus, 1767)

LIGHT EMERALD

7839 [1962]. *Hylaea fasciaria* (Linnaeus, 1758)

BARRED RED

7848 [1963]. *Gnophos obfuscata* ([Denis and Schiffermüller], 1775)

SCOTTISH ANNULET

7852 [1962a]. *Gnophos dumetata* Treitschke, 1827

Synonym *Odontognophos dumetata* (Treitschke, 1827)

ssp. *hibernica* Forder, 1993

IRISH ANNULET

7857 [1964]. *Charissa obscurata* ([Denis and Schiffermüller], 1775)

ANNULET

7922 [1967]. *Aspitates gilvaria* ([Denis and Schiffermüller], 1775)

ssp. *burrenensis* Cockayne, 1951

STRAW BELLE

7931 [1969]. *Dyscia fagaria* (Thunberg, 1784)

GREY SCALLOPED BAR

7939 [1970]. *Perconia strigillaria* (Hübner, [1787])

GRASS WAVE

7953 [1663]. *Alsophila aescularia* ([Denis and Schiffermüller], 1775)

MARCH MOTH

7965 [1665]. *Pseudoterpna pruinata* (Hufnagel, 1767)

ssp. *atropunctaria* (Walker, 1863)

GRASS EMERALD

7969 [1666]. *Geometra papilionaria* (Linnaeus, 1758)

LARGE EMERALD

7980 [1669]. *Hemithea aestivaria* (Hübner, 1789)

COMMON EMERALD

8000 [1673]. *Hemistola chrysoprasaria* (Esper, 1795)

SMALL EMERALD

8002 [1674]. *Jodis lactearia* (Linnaeus, 1758)

LITTLE EMERALD

8016 [1677]. *Cyclophora albipunctata* (Hufnagel, 1767)

BIRCH MOCHA

8017 [1678]. *Cyclophora puppillaria* (Hübner, [1799])

BLAIR'S MOCHA

8022 [1680]. *Cyclophora punctaria* (Linnaeus, 1758)

MAIDEN'S BLUSH

8024 [1681]. *Cyclophora linearia* (Hübner, [1799])

CLAY TRIPLE-LINES

8028 [1682]. *Timandra comae* Schmidt, 1931

BLOOD-VEIN

8059 [1689]. *Scopula marginepunctata* (Goeze, 1781)

MULLEIN WAVE

8062 [1690]. *Scopula imitaria* (Hübner, [1799])

SMALL BLOOD-VEIN

8064 [1692]. *Scopula immutata* (Linnaeus, 1758)

LESSER CREAM WAVE

8067 [1694]. *Scopula ternata* (Schrank, 1802)

SMOKY WAVE

8069 [1693]. *Scopula floslactata* (Haworth, 1809)

ssp. *floslactata* (Haworth, 1809)

CREAM WAVE

***8072 [1691].** *Scopula emutaria* (Hübner, 1809)

ROSY WAVE

8104 [1698]. *Idaea muricata* (Hufnagel, 1767)

PURPLE-BORDERED GOLD

8132 [1702]. *Idaea biselata* (Hufnagel, 1767)

SMALL FAN-FOOTED WAVE

8161 [1708]. *Idaea dimidiata* (Hufnagel, 1767)

SINGLE-DOTTED WAVE

8167 [1709]. *Idaea subsericeata* (Haworth, 1809)

SATIN WAVE

8184 [1713]. *Idaea aversata* (Linnaeus, 1758)

RIBAND WAVE

8187 [1715]. *Idaea straminata* (Borkhausen, 1794)

PLAIN WAVE

8211 [1716]. *Rhodometra sacraria* (Linnaeus, 1767)

VESTAL

8239 [1732]. *Scotopteryx chenopodiata* (Linnaeus, 1758)

SHADED BROAD-BAR

8240 [1733]. *Scotopteryx mucronata* (Scopoli, 1763)

ssp. *umbrifera* (Heydemann, 1925)

ssp. *scotica* (Cockayne, 1940)

LEAD BELLE

8241 [1734]. *Scotopteryx luridata* (Hufnagel, 1767)

ssp. *plumbaria* (Fabricius, 1775)

JULY BELLE

8245 [1719]. *Orthonama vittata* (Borkhausen, 1794)

OBLIQUE CARPET

8246 [1720]. *Nycterosea obstipata* (Fabricius, 1794)

Synonym *Orthonama obstipata* (Fabricius, 1794)

GEM

8249 [1722]. *Xanthorhoe designata* (Hufnagel, 1767)

FLAME CARPET

8251 [1723]. *Xanthorhoe decoloraria* (Esper, 1806)

ssp. *decoloraria* (Esper, 1805)

RED CARPET

8252 [1724]. *Xanthorhoe spadicearia* ([Denis and Schiffermüller], 1775)

RED TWIN-SPOT CARPET

8253 [1725]. *Xanthorhoe ferrugata* (Clerck, 1759)

DARK-BARRED TWIN-SPOT CARPET

8255 [1727]. *Xanthorhoe montanata* ([Denis and Schiffermüller], 1775)

ssp. *montanata* ([Denis and Schiffermüller], 1775)

SILVER-GROUND CARPET

8256 [1728]. *Xanthorhoe fluctuata* (Linnaeus, 1758)

GARDEN CARPET

8269 [1736]. *Catarhoe cuculata* (Hufnagel, 1767)

ROYAL MANTLE

8274 [1737]. *Epirrhoe tristata* (Linnaeus, 1758)

SMALL ARGENT AND SABLE

8275 [1738]. *Epirrhoe alternata* (Müller, 1764)

ssp. *alternata* (Müller, 1764)

COMMON CARPET

8279 [1740]. *Epirrhoe galiata* ([Denis and Schiffermüller], 1775)

GALIUM CARPET

8289 [1742]. *Camptogramma bilineata* (Linnaeus, 1758)

ssp. *bilineata* (Linnaeus, 1758)

ssp. *hibernica* Tutt, 1902

ssp. *isolata* Kane, 1896

YELLOW SHELL

8299 [1743]. *Entephria flavicinctata* (Hübner, [1813])

ssp. *flavicinctata* (Hübner, [1813])

YELLOW-RINGED CARPET

8302 [1744]. *Entephria caesiata* ([Denis and Schiffermüller], 1775)

GREY MOUNTAIN CARPET

8304 [1745]. *Larentia clavaria* (Haworth, 1809)

MALLOW

8309 [1746]. *Earophila badiata* ([Denis and Schiffermüller], 1775)

Synonym *Anticlea badiata* ([Denis and Schiffermüller], 1775)

SHOULDER STRIPE

8310 [1747]. *Anticlea derivata* ([Denis and Schiffermüller], 1775)

STREAMER

8312 [1748]. *Mesoleuca albicillata* (Linnaeus, 1758)

BEAUTIFUL CARPET

8314 [1749]. *Pelurga comitata* (Linnaeus, 1758)

DARK SPINACH

8316 [1750]. *Lampropteryx suffumata* ([Denis and Schiffermüller], 1775)

WATER CARPET

8319 [1752]. *Cosmorhoe ocellata* (Linnaeus, 1758)

PURPLE BAR

8321 [1753]. *Coenotephria salicata* ([Denis and Schiffermüller], 1775)

Synonym *Nebula salicata* (Hübner, [1799])

ssp. *latentaria* (Curtis, 1830)

STRIPED TWIN-SPOT CARPET

8330 [1754]. *Eulithis prunata* (Linnaeus, 1758)

PHOENIX

8331 [1755]. *Eulithis testata* (Linnaeus, 1761)

CHEVRON

8332 [1756]. *Eulithis populata* (Linnaeus, 1758)

NORTHERN SPINACH

8334 [1757]. *Eulithis mellinata* (Fabricius, 1787)

SPINACH

8335 [1758]. *Gandaritis pyraliata* ([Denis and Schiffermüller], 1775)

Synonym *Eulithis pyraliata* ([Denis and Schiffermüller, 1775)

BARRED STRAW

8338 [1759]. *Ecliptopera silaceata* ([Denis and Schiffermüller], 1775)

SMALL PHOENIX

8341 [1760]. *Chloroclysta siterata* (Hufnagel, 1767)

RED-GREEN CARPET

8342 [1761]. *Chloroclysta miata* (Linnaeus, 1758)

AUTUMN GREEN CARPET

8343 [1762]. *Dysstroma citrata* (Linnaeus, 1761)

Synonym *Chloroclysta citrata* (Linnaeus, 1761)

ssp. *citrata* (Linnaeus, 1761)

DARK MARBLED CARPET

8348 [1764]. *Dysstroma truncata* (Hufnagel, 1767)

Synonym *Chloroclysta truncata* (Hufnagel, 1767)

COMMON MARBLED CARPET

8350 [1765]. *Cidaria fulvata* (Forster, 1771)

BARRED YELLOW

8352 [1766]. *Plemyria rubiginata* ([Denis and Schiffermüller], 1775)

ssp. *rubiginata* ([Denis and Schiffermüller], 1775)

BLUE-BORDERED CARPET

8354 [1767]. *Pennithera firmata* (Hübner, 1822)

Synonym *Thera firmata* (Hübner, 1822)

PINE CARPET

8356 [1768]. *Thera obeliscata* (Hübner, [1787])

GREY PINE CARPET

8358 [1769]. *Thera britannica* (Turner, 1925)

SPRUCE CARPET

8361 [1770]. *Thera cognata* (Thunberg, 1792)

CHESTNUT-COLOURED CARPET

8362 [1771]. *Thera juniperata* (Linnaeus, 1758)

ssp. *scotica* (White, 1871)

ssp. *juniperata* (Linnaeus, 1758)

JUNIPER CARPET

8368 [1773]. *Electrophaes corylata* (Thunberg, 1792)

BROKEN-BARRED CARPET

8371 [1774]. *Colostygia olivata* ([Denis and Schiffermüller], 1775)

BEECH-GREEN CARPET

8376 [1775]. *Colostygia multistrigaria* (Haworth, 1809)

MOTTLED GREY

8385 [1776]. *Colostygia pectinataria* (Knoch, 1781)

GREEN CARPET

8391 [1777]. *Hydriomena furcata* (Thunberg, 1784)

JULY HIGHFLYER

8392 [1778]. *Hydriomena impluviata* ([Denis and Schiffermüller], 1775)

MAY HIGHFLYER

8393 [1779]. *Hydriomena ruberata* (Freyer, 1831)

RUDDY HIGHFLYER

8397 [1780]. *Coenocalpe lapidata* (Hübner, 1809)

SLENDER-STRIPED RUFOUS

8400 [1781]. *Horisme vitalbata* ([Denis and Schiffermüller], 1775)

SMALL WAVED UMBER

8402 [1782]. *Horisme tersata* ([Denis and Schiffermüller], 1775)

FERN

8414 [1785]. *Pareulype berberata* ([Denis and Schiffermüller], 1775)

BARBERRY CARPET

8419 [1787]. *Rheumaptera hastata* (Linnaeus, 1758)

ssp. *hastata* (Linnaeus, 1758)

ARGENT AND SABLE

8423 [1789]. *Hydria undulata* (Linnaeus, 1758)

Synonym *Rheumaptera undulata* (Linnaeus, 1758)

SCALLOP SHELL

8428 [1790]. *Triphosa dubitata* (Linnaeus, 1758)

TISSUE

8432 [1791]. *Philereme vetulata* ([Denis and Schiffermüller], 1775)

BROWN SCALLOP

8433 [1792]. *Philereme transversata* (Hufnagel, 1767)

ssp. *britannica* Lempke, 1968

DARK UMBER

8435 [1793]. *Euphyia biangulata* (Haworth, 1809)

CLOAKED CARPET

8436 [1794]. *Euphyia unangulata* (Haworth, 1809)

SHARP-ANGLED CARPET

8442 [1795]. *Epirrita dilutata* ([Denis and Schiffermüller], 1775)

NOVEMBER MOTH

8443 [1796]. *Epirrita christyi* (Allen, 1906)

PALE NOVEMBER MOTH

8444 [1797]. *Epirrita autumnata* (Borkhausen, 1794)

AUTUMNAL MOTH

8445 [1798]. *Epirrita filigrammaria* (Herrich-Schäffer, 1846)

SMALL AUTUMNAL MOTH

8447 [1799]. *Operophtera brumata* (Linnaeus, 1758)

WINTER MOTH

8448 [1800]. *Operophtera fagata* (Scharfenberg, 1805)

NORTHERN WINTER MOTH

8454 [1801]. *Martania taeniata* (Stephens, 1831)

Synonym *Perizoma taeniata* (Stephens, 1831)

BARRED CARPET

8455 [1802]. *Perizoma affinitata* (Stephens, 1831)

RIVULET

8456 [1803]. *Perizoma alchemillata* (Linnaeus, 1758)

SMALL RIVULET

8459 [1804]. *Perizoma bifaciata* (Haworth, 1809)

BARRED RIVULET

8461 [1805]. *Perizoma minorata* (Treitshke, 1828)

ssp. *ericetata* (Stephens, 1831)

HEATH RIVULET

8462 [1806]. *Perizoma blandiata* ([Denis and Schiffermüller], 1775)

ssp. *blandiata* ([Denis and Schiffermüller], 1775)

PRETTY PINION

8463 [1807]. *Perizoma albulata* ([Denis and Schiffermüller], 1775)

ssp. *albulata* ([Denis and Schiffermüller], 1775)

GRASS RIVULET

8464 [1808]. *Perizoma flavofasciata* (Thunberg, 1792)

SANDY CARPET

8465 [1809]. *Mesotype didymata* (Linnaeus, 1758)

Synonym *Perizoma taeniata* (Linnaeus, 1758)

ssp. *didymata* (Linnaeus, 1758)

TWIN-SPOT CARPET

8475 [1811]. *Eupithecia tenuiata* (Hübner, [1813])

SLENDER PUG

8477 [1813]. *Eupithecia haworthiata* Doubleday, 1856

HAWORTH'S PUG

8479 [1814]. *Eupithecia plumbeolata* (Haworth, 1809)

LEAD-COLOURED PUG

8481 [1815]. *Eupithecia abietaria* (Goeze, 1781)

CLOAKED PUG

8483 [1816]. *Eupithecia linariata* ([Denis and Schiffermüller], 1775)

TOADFLAX PUG

8484 [1817]. *Eupithecia pulchellata* Stephens, 1831

ssp. *pulchellata* Stephens, 1831

ssp. *hebudium* Sheldon, 1899

FOXGLOVE PUG

8491 [1819]. *Eupithecia exiguata* (Hübner, [1813])

ssp. *exiguata* (Hübner, [1813])

MOTTLED PUG

8494 [1821]. *Eupithecia valerianata* (Hübner, [1813])

VALERIAN PUG

8495 [1822]. *Eupithecia pygmaeata* (Hübner, [1799])

MARSH PUG

8502 [1823]. *Eupithecia venosata* (Fabricius, 1787)

ssp. *venosata* (Fabricius, 1787)

ssp. *plumbea* Huggins, 1962

NETTED PUG

8509 [1825]. *Eupithecia centaureata* ([Denis and Schiffermüller], 1775)

LIME-SPECK PUG

8517 [1826]. *Eupithecia trisignaria* Herrich-Schäffer, 1848

TRIPLE-SPOTTED PUG

8519 [1827]. *Eupithecia intricata* (Zetterstedt, 1839)

ssp. *hibernica* Mere, 1964

MERE'S PUG

8526 [1828]. *Eupithecia satyrata* (Hübner, [1813])

ssp. *callunaria* Doubleday, 1850

SATYR PUG

8527 [1830]. *Eupithecia absinthiata* (Clerck, 1759)

Synonym *Eupithecia goosensiata* Mabille, 1869

WORMWOOD PUG

8531 [1832]. *Eupithecia assimilata* Doubleday, 1856

CURRANT PUG

8530 [1833]. *Eupithecia expallidata* Doubleday, 1856

BLEACHED PUG

8534 [1834]. *Eupithecia vulgata* (Haworth, 1809)

ssp. *scotica* Cockayne, 1951

ssp. *clarensis* Huggins, 1962

COMMON PUG

8535 [1835]. *Eupithecia tripunctaria* Herrich-Schäffer, 1852

WHITE-SPOTTED PUG

8536 [1836]. *Eupithecia denotata* (Hübner, [1813])

ssp. *jasioneata* Crewe, 1881

JASIONE PUG

8537 [1837]. *Eupithecia subfuscata* (Haworth, 1809)

GREY PUG

8538 [1838]. *Eupithecia icterata* (de Villers, 1789)

ssp. *subfulvata* (Haworth, 1809)

ssp. *oxydata* Treitschke, 1827

TAWNY SPECKLED PUG

8539 [1839]. *Eupithecia succenturiata* (Linnaeus, 1758)

BORDERED PUG

8546 [1840]. *Eupithecia subumbrata* ([Denis and Schiffermüller], 1775)

SHADED PUG

8553 [1842]. *Eupithecia simpliciata* (Haworth, 1809)

PLAIN PUG

8556 [1843]. *Eupithecia distinctaria* Herrich-Schäffer, 1848

ssp. *constrictata* Guenée, 1857

THYME PUG

8565 [1844]. *Eupithecia indigata* (Hübner, [1813])

OCHREOUS PUG

8567 [1845]. *Eupithecia pimpinellata* (Hübner, [1813])

PIMPINEL PUG

8570 [1846]. *Eupithecia nanata* (Hübner, [1813])

NARROW-WINGED PUG

8573 [1848]. *Eupithecia innotata* (Hufnagel, 1767)

form *fraxinata* Crewe, 1863

ASH PUG

8577 [1851]. *Eupithecia virgaureata* Doubleday, 1861

GOLDEN-ROD PUG

8578 [1852]. *Eupithecia abbreviata* Stephens, 1831

BRINDLED PUG

8579 [1853]. *Eupithecia dodoneata* Guenée, 1858

OAK-TREE PUG

8583 [1854]. *Eupithecia pusillata* ([Denis and Schiffermüller], 1775)

ssp. *pusillata* ([Denis and Schiffermüller], 1775)

JUNIPER PUG

8584 [1855]. *Eupithecia phoeniceata* (Rambur, 1834)

CYPRESS PUG

8595 [1856]. *Eupithecia lariciata* (Freyer, 1841)

LARCH PUG

8596 [1857]. *Eupithecia tantillaria* Boisduval, 1840

DWARF PUG

8599 [1862]. *Gymnoscelis rufifasciata* (Haworth, 1809)

DOUBLE-STRIPED PUG

8601 [1858]. *Chloroclystis v-ata* (Haworth, 1809)

V-PUG

8603 [1860]. *Pasiphila rectangulata* (Linnaeus, 1758)

GREEN PUG

8605 [1861]. *Pasiphila debiliata* (Hübner, [1817])

BILBERRY PUG

8609 [1864]. *Chesias legatella* ([Denis and Schiffermüller], 1775)

STREAK

***8610 [1865].** *Chesias rufata* (Fabricius, 1775)

BROOM-TIP

8617 [1866]. *Carsia sororiata* (Hübner, [1813])

ssp. *anglica* Prout, 1937

MANCHESTER TREBLE-BAR

8620 [1867]. *Aplocera plagiata* (Linnaeus, 1758)

ssp. *plagiata* (Linnaeus, 1758)

TREBLE-BAR

8631 [1870]. *Odezia atrata* (Linnaeus, 1758)

CHIMNEY SWEEPER

8652 [1873]. *Venusia cambrica* Curtis, 1839

WELSH WAVE

***8654 [1874].** *Euchoeca nebulata* (Scopoli, 1763)

DINGY SHELL

8656 [1875]. *Asthena albulata* (Hufnagel, 1767)

SMALL WHITE WAVE

8660 [1876]. *Hydrelia flammeolaria* (Hufnagel, 1767)

SMALL YELLOW WAVE

8661 [1877]. *Hydrelia sylvata* ([Denis and Schiffermüller], 1775)

WAVED CARPET

8665 [1879]. *Lobophora halterata* (Hufnagel, 1767)

SERAPHIM

8668 [1881]. *Trichopteryx carpinata* (Borkhausen, 1794)

EARLY TOOTH-STRIPED

8675 [1882]. *Pterapherapteryx sexalata* (Retzius, 1783)

SMALL SERAPHIM

8681 [1883]. *Acasis viretata* (Hübner, [1799])

YELLOW-BARRED BRINDLE

NOTODONTIDAE

8699 [2017]. *Clostera pigra* (Hufnagel, 1766)

SMALL CHOCOLATE-TIP

[8698 [2019]. *Clostera curtula* (Linnaeus, 1758)

CHOCOLATE-TIP**]**

8704 [1995]. *Cerura vinula* (Linnaeus, 1758)

PUSS MOTH

8708 [1997]. *Furcula furcula* (Clerck, 1759)

SALLOW KITTEN

8709 [1996]. *Furcula bicuspis* (Borkhausen, 1790)

ALDER KITTEN

8710 [1998]. *Furcula bifida* (Brahm, 1787)

POPLAR KITTEN

8716 [2000]. *Notodonta dromedarius* (Linnaeus, 1767)

IRON PROMINENT

8719 [2003]. *Notodonta ziczac* (Linnaeus, 1758)

PEBBLE PROMINENT

8721 [2014]. *Drymonia dodonaea* ([Denis and Schiffermüller], 1775)

MARBLED BROWN

8722 [2015]. *Drymonia ruficornis* (Hufnagel, 1766)

LUNAR MARBLED BROWN

8727 [2007]. *Pheosia tremula* (Clerck, 1759)

SWALLOW PROMINENT

8728 [2006]. *Pheosia gnoma* (Fabricius, 1776)

LESSER SWALLOW PROMINENT

8732 [2011]. *Pterostoma palpina* (Clerck, 1759)

PALE PROMINENT

8736 [2012]. *Leucodonta bicoloria* ([Denis and Schiffermüller], 1775)

WHITE PROMINENT

8738 [2008]. *Ptilodon capucina* (Linnaeus, 1758)

COXCOMB PROMINENT

8741 [2010]. *Odontosia carmelita* (Esper, 1799)

SCARCE PROMINENT

8750 [1994]. *Phalera bucephala* (Linnaeus, 1758)

BUFF-TIP

8758 [1999]. *Stauropus fagi* (Linnaeus, 1758)

LOBSTER MOTH

NOCTUIDAE

8774 [2281]. *Acronicta alni* (Linnaeus, 1767)

ALDER MOTH

8777 [2284]. *Acronicta psi* (Linnaeus, 1758)

GREY DAGGER

[8778 [2279]. *Acronicta aceris* (Linnaeus, 1758)

SYCAMORE]

8779 [2280]. *Acronicta leporina* (Linnaeus, 1758)

MILLER

8780 [2278]. *Subacronicta megacephala* ([Denis and Schiffermüller], 1775)

Synonym *Acronicta megacephala* ([Denis and Schiffermüller], 1775)

POPLAR GREY

8782 [2286]. *Acronicta menyanthidis* (Esper, 1789)

ssp. *menyanthidis* (Esper, 1789)

LIGHT KNOT GRASS

***8783 [2287].** *Acronicta auricoma* ([Denis and Schiffermüller], 1775)

SCARCE DAGGER

8784 [2288]. *Acronicta euphorbiae* ([Denis and Schiffermüller], 1775)

ssp. *myricae* Guenée, 1852

SWEET GALE MOTH

8787 [2289]. *Acronicta rumicis* (Linnaeus, 1758)

KNOT GRASS

8789 [2291]. *Craniophora ligustri* ([Denis and Schiffermüller], 1775)

CORONET

8816 [2293]. *Bryophila domestica* (Hufnagel, 1766)

Synonym *Cryphia domestica* (Hufnagel, 1766)

MARBLED BEAUTY

8818 [2295]. *Nyctobrya muralis* (Forster, 1771)

Synonym *Cryphia muralis* (Forster, 1771)

ssp. *muralis* (Forster, 1771)

MARBLED GREEN

8846 [2492]. *Herminia grisealis* ([Denis and Schiffermüller], 1775)

SMALL FAN-FOOT

8852 [2488]. *Pechipogo strigilata* (Linnaeus, 1758)

COMMON FAN-FOOT

8858 [2489]. *Herminia tarsipennalis* (Treitschke, 1835)

Synonym *Zanclognatha tarsipennalis* (Treitschke, 1835)

FAN-FOOT

8863 [2485]. *Hypenodes humidalis* Doubleday, 1850

MARSH OBLIQUE-BARRED

8866 [2484]. *Schrankia costaestrigalis* (Stephens, 1834)

PINION-STREAKED SNOUT

8868 [2482]. *Schrankia taenialis* (Hübner, 1809)

WHITE-LINE SNOUT

8873 [2451]. *Catocala fraxini* (Linnaeus, 1758)

CLIFDEN NONPAREIL

8874 [2452]. *Catocala nupta* (Linnaeus, 1767)

RED UNDERWING

8897 [2456]. *Minucia lunaris* ([Denis and Schiffermüller], 1775)

LUNAR DOUBLE-STRIPE

A 8961 [2455b]. *Pandesma robusta* (Walker, 1858)

Synonym *Thria robusta* (Walker, 1858)

8967 [2462]. *Euclidia mi* (Clerck, 1759)

Synonym *Callistege mi* (Clerck, 1759)

MOTHER SHIPTON

8969 [2463]. *Euclidia glyphica* (Linnaeus, 1758)

BURNET COMPANION

8984 [2469]. *Scoliopteryx libatrix* (Linnaeus, 1758)

HERALD

8994 [2477]. *Hypena proboscidalis* (Linnaeus, 1758)

SNOUT

8997 [2478]. *Hypena obsitalis* (Hübner, [1813])

BLOXWORTH SNOUT

9002 [2476]. *Hypena crassalis* (Fabricius, 1787)

BEAUTIFUL SNOUT

9006 [2470]. *Phytometra viridaria* (Clerck, 1759)

SMALL PURPLE-BARRED

9008 [2474]. *Rivula sericealis* (Scopoli, 1763)

STRAW DOT

9027 [2438]. *Euchalcia variabilis* (Piller, 1783)

PURPLE-SHADED GEM

9036 [2437]. *Polychrysia moneta* (Fabricius, 1787)

GOLDEN PLUSIA

9045 [2434]. *Diachrysia chrysitis* (Linnaeus, 1758)

BURNISHED BRASS

9053 [2439]. *Plusia festucae* (Linnaeus, 1758)

GOLD SPOT

9054 [2440]. *Plusia putnami* (Grote, 1873)

ssp. *gracilis* (Lempke, 1966)

LEMPKE'S GOLD SPOT

9056 [2441]. *Autographa gamma* (Linnaeus, 1758)

SILVER Y

9059 [2442]. *Autographa pulchrina* (Haworth, 1809)

BEAUTIFUL GOLDEN Y

9061 [2443]. *Autographa jota* (Linnaeus, 1758)

PLAIN GOLDEN Y

9062 [2444]. *Autographa bractea* ([Denis and Schiffermüller], 1775)

GOLD SPANGLE

9074 [2447]. *Syngrapha interrogationis* (Linnaeus, 1758)

SCARCE SILVER Y

9078 [2433]. *Thysanoplusia orichalcea* (Fabricius, 1775)

SLENDER BURNISHED BRASS

9081 [2432]. *Trichoplusia ni* (Hübner, 1803)

NI MOTH

9089 [2429]. *Chrysodeixis acuta* (Walker, 1858)

TUNBRIDGE WELLS GEM

9091 [2450]. *Abrostola tripartita* (Hufnagel, 1766)

SPECTACLE

9093 [2449]. *Abrostola triplasia* (Linnaeus, 1758)

DARK SPECTACLE

9114 [2410]. *Deltote pygarga* (Hufnagel, 1766)

Synonym *Protodeltote pygarga* (Hufnagel, 1766)

MARBLED WHITE SPOT

9117 [2412]. *Deltote uncula* (Clerck, 1759)

SILVER HOOK

9118 [2413]. *Deltote bankiana* (Fabricius, 1775)

SILVER BARRED

9140 [2407]. *Eublemma ostrina* (Hübner, 1808)

PURPLE MARBLED

9142 [2408]. *Eublemma parva* (Hübner, 1808)

SMALL MARBLED

9183 [2211]. *Cucullia absinthii* (Linnaeus, 1761)

WORMWOOD

9199 [2216]. *Cucullia umbratica* (Linnaeus, 1758)

SHARK

9207 [2214]. *Cucullia chamomillae* ([Denis and Schiffermüller], 1775)

CHAMOMILE SHARK

9233 [2221]. *Cucullia verbasci* (Linnaeus, 1758)

MULLEIN

9307 [2297]. *Amphipyra pyramidea* (Linnaeus, 1758)

COPPER UNDERWING

9308 [2298]. *Amphipyra berbera* Rungs, 1949

SVENSSON'S COPPER UNDERWING

9311 [2299]. *Amphipyra tragopoginis* (Clerck, 1759)

MOUSE MOTH

9320 [2227]. *Asteroscopus sphinx* (Hufnagel, 1766)

SPRAWLER

9331 [2020]. *Diloba caeruleocephala* (Linnaeus, 1758)

FIGURE OF EIGHT

9338 [2397]. *Panemeria tenebrata* (Scopoli, 1763)

SMALL YELLOW UNDERWING

9358 [2405]. *Protoschinia scutosa* ([Denis and Schiffermüller], 1775)

Synonym *Schinia scutosa* ([Denis and Schiffermüller], 1775)

SPOTTED CLOVER

9367 [2403]. *Heliothis peltigera* ([Denis and Schiffermüller], 1775)

BORDERED STRAW

***9368 [2404].** *Heliothis nubigera* Herrich-Schäffer, 1851

EASTERN BORDERED STRAW

9370 [2400]. *Helicoverpa armigera* (Hübner, 1808)

SCARCE BORDERED STRAW

9372 [2399]. *Pyrrhia umbra* (Hufnagel, 1766)

BORDERED SALLOW

9407 [2394]. *Stilbia anomala* (Haworth, 1812)

ANOMALOUS

9417 [2387]. *Caradrina morpheus* (Hufnagel, 1766)

MOTTLED RUSTIC

9433 [2389]. *Caradrina clavipalpis* (Scopoli, 1763)

Synonym *Paradrina clavipalpis* (Scopoli, 1763)

PALE MOTTLED WILLOW

9449 [2381]. *Hoplodrina octogenaria* (Goeze, 1781)

Synonym *Hoplodrina alsines* (Brahm, 1791)

UNCERTAIN

9450 [2382]. *Hoplodrina blanda* ([Denis and Schiffermüller], 1775)

RUSTIC

9454 [2384]. *Hoplodrina ambigua* ([Denis and Schiffermüller], 1775)

VINE'S RUSTIC

9456 [2380]. *Charanyca trigrammica* (Hufnagel, 1766)

TREBLE LINES

9460 [2385]. *Spodoptera exigua* (Hübner, 1808)

SMALL MOTTLED WILLOW

***9461 [2386c].** *Spodoptera cilium* Guenée, 1852

DARK MOTTLED WILLOW

9471 [2391]. *Chilodes maritima* (Tauscher, 1806)

SILKY WAINSCOT

9483 [2302]. *Charanyca ferruginea* (Esper, 1785)

Synonym *Rusina ferruginea* (Esper, 1785)

BROWN RUSTIC

9490 [2300]. *Mormo maura* (Linnaeus, 1758)

OLD LADY

9496 [2303]. *Thalpophila matura* (Hufnagel, 1766)

STRAW UNDERWING

9503 [2305]. *Euplexia lucipara* (Linnaeus, 1758)

SMALL ANGLE SHADES

9505 [2306]. *Phlogophora meticulosa* (Linnaeus, 1758)

ANGLE SHADES

9508 [2320]. *Hyppa rectilinea* (Esper, 1788)

SAXON

9528 [2312]. *Ipimorpha subtusa* ([Denis and Schiffermüller], 1775)

OLIVE

***9531 [2313].** *Enargia paleacea* (Esper, 1788)

ANGLE-STRIPED SALLOW

9536 [2268]. *Parastichtis suspecta* (Hübner, [1817])

SUSPECTED

9537 [2314]. *Apterogenum ypsillon* ([Denis and Schiffermüller], 1775)

Synonym *Parastichtis ypsillon* ([Denis and Schiffermüller], 1775)

DINGY SHEARS

9548 [2316]. *Cosmia affinis* (Linnaeus, 1767)

LESSER-SPOTTED PINION

9550 [2318]. *Cosmia trapezina* (Linnaeus, 1758)

DUN-BAR

9552 [2269]. *Atethmia centrago* (Haworth, 1809)

CENTRE-BARRED SALLOW

9556 [2273]. *Xanthia togata* (Esper, 1788)

PINK-BARRED SALLOW

9559 [2274]. *Xanthia icteritia* (Hufnagel, 1766)

SALLOW

***9562 [2271].** *Tiliacea citrago* (Linnaeus, 1758)

Synonym *Xanthia citrago* (Linnaeus, 1758)

ORANGE SALLOW

9565 [2267]. *Agrochola lychnidis* ([Denis and Schiffermüller], 1775)

BEADED CHESTNUT

9566 [2262]. *Agrochola circellaris* (Hufnagel, 1766)

BRICK

9569 [2263]. *Agrochola lota* (Clerck, 1759)

RED-LINE QUAKER

9571 [2264]. *Agrochola macilenta* (Hübner, 1809)

YELLOW-LINE QUAKER

9575 [2265]. *Agrochola helvola* (Linnaeus, 1758)

FLOUNCED CHESTNUT

9586 [2266]. *Agrochola litura* (Linnaeus, 1758)

BROWN-SPOT PINION

9591 [2270]. *Agrochola lunosa* (Haworth, 1809)

Synonym *Omphaloscelis lunosa* (Haworth, 1809)

LUNAR UNDERWING

9596 [2256]. *Eupsilia transversa* (Hufnagel, 1766)

SATELLITE

9600 [2258]. *Conistra vaccinii* (Linnaeus, 1761)

CHESTNUT

9601 [2259]. *Conistra ligula* (Esper, 1791)

DARK CHESTNUT

9638 [2229]. *Dasypolia templi* (Thunberg, 1792)

BRINDLED OCHRE

9642 [2225]. *Brachylomia viminalis* (Fabricius, 1776)

MINOR SHOULDER-KNOT

9647 [2230]. *Aporophyla australis* (Boisduval, 1829)

ssp. *pascuea* (Humphreys and Westwood, 1843)

FEATHERED BRINDLE

9650 [2231a]. *Aporophyla lueneburgensis* (Freyer, 1848)

NORTHERN DEEP-BROWN DART

9651 [2232]. *Aporophyla nigra* (Haworth, 1809)

BLACK RUSTIC

***9657 [2235].** *Lithophane semibrunnea* (Haworth, 1809)

TAWNY PINION

9658 [2236]. *Lithophane socia* (Hufnagel, 1766)

PALE PINION

9660 [2237]. *Lithophane ornitopus* (Hufnagel, 1766)

ssp. *lactipennis* (Dadd, 1911)

GREY SHOULDER-KNOT

***9664 [2240].** *Lithophane leautieri* (Boisduval, 1829)

ssp. *hesperica* Boursin, 1957

BLAIR'S SHOULDER-KNOT

9670 [2241]. *Xylena vetusta* (Hübner, [1813])

RED SWORD-GRASS

9671 [2242]. *Xylena exsoleta* (Linnaeus, 1758)

SWORD-GRASS

9676 [2243]. *Xylocampa areola* (Esper, 1789)

EARLY GREY

9682 [2245]. *Allophyes oxyacanthae* (Linnaeus, 1758)

GREEN-BRINDLED CRESCENT

9694 [2247]. *Griposia aprilina* (Linnaeus, 1758)

Synonym *Dichonia aprilina* (Linnaeus, 1758)

MERVEILLE DU JOUR

9699 [2248]. *Dryobotodes eremita* (Fabricius, 1775)

BRINDLED GREEN

9706 [2254]. *Antitype chi* (Linnaeus, 1758)

GREY CHI

9721 [2253]. *Polymixis xanthomista* (Hübner, [1819])

ssp. *statices* (Gregson, 1869)

BLACK-BANDED

9724 [2255]. *Polymixis lichenea* (Hübner, [1813])

ssp. *lichenea* (Hübner, [1813])

FEATHERED RANUNCULUS

9741 [2250]. *Mniotype adusta* (Esper, 1790)

DARK BROCADE

9748 [2321]. *Apamea monoglypha* (Hufnagel, 1766)

DARK ARCHES

9752 [2322]. *Apamea lithoxylaea* ([Denis and Schiffermüller], 1775)

LIGHT ARCHES

9753 [2323]. *Apamea sublustris* (Esper, 1788)

REDDISH LIGHT ARCHES

9755 [2326]. *Apamea crenata* (Hufnagel, 1766)

CLOUDED-BORDERED BRINDLE

9756 [2327]. *Apamea epomidion* (Haworth, 1809)

CLOUDED BRINDLE

9759 [2329]. *Apamea furva* ([Denis and Schiffermüller], 1775)
ssp. *britannica* Cockayne, 1950
CONFUSED

9765 [2325]. *Apamea oblonga* (Haworth, 1809)
CRESCENT STRIPED

9766 [2330]. *Apamea remissa* (Hübner, 1809)
DUSKY BROCADE

9767 [2331]. *Apamea unanimis* (Hübner, [1813])
SMALL CLOUDED BRINDLE

9770 [2333]. *Apamea anceps* ([Denis and Schiffermüller], 1775)
LARGE NUTMEG

9771 [2334]. *Apamea sordens* (Hufnagel, 1766)
RUSTIC SHOULDER-KNOT

9774 [2335]. *Apamea scolopacina* (Esper, 1788)
SLENDER BRINDLE

9775 [2336]. *Lateroligia ophiogramma* (Esper, 1794)
Synonym *Apamea ophiogramma* (Esper, 1794)
DOUBLE LOBED

9780 [2337]. *Oligia strigilis* (Linnaeus, 1758)
MARBLED MINOR

9781 [2338]. *Oligia versicolor* (Borkhausen, 1792)
RUFOUS MINOR

9782 [2339]. *Oligia latruncula* ([Denis and Schiffermüller], 1775)
TAWNY MARBLED MINOR

9784 [2340]. *Oligia fasciuncula* (Haworth, 1809)
MIDDLE-BARRED MINOR

9786 [2341]. *Mesoligia furuncula* ([Denis and Schiffermüller], 1775)
CLOAKED MINOR

9787 [2342]. *Litoligia literosa* (Haworth, 1809)

Synonym *Mesoligia literosa* (Haworth, 1809)

ROSY MINOR

9789 [2343]. *Mesapamea secalis* (Linnaeus, 1758)

Synonym *Mesapamea didyma* (Esper, 1788)

COMMON RUSTIC

9790 [2343a]. *Mesapamea secalella* Remm, 1983

Mesapamea didyma misidentification

LESSER COMMON RUSTIC

9794 [2344]. *Photedes captiuncula* (Treitschke, 1825)

ssp. *tincta* (Kane, 1895)

LEAST MINOR

9795 [2345]. *Photedes minima* (Haworth, 1809)

SMALL DOTTED BUFF

9876 [2350]. *Denticucullus pygmina* (Haworth, 1809)

Synonym *Chortodes pygmina* (Haworth, 1809)

SMALL WAINSCOT

9801 [2353]. *Luperina testacea* ([Denis and Schiffermüller], 1775)

FLOUNCED RUSTIC

9803 [2354]. *Luperina nickerlii* (Freyer, 1845)

ssp. *knilli* Boursin, 1964

SANDHILL RUSTIC

9814 [2375]. *Rhizedra lutosa* (Hübner, 1803)

LARGE WAINSCOT

9828 [2360]. *Amphipoea oculea* (Linnaeus, 1761)

EAR MOTH

9829 [2358]. *Amphipoea fucosa* (Freyer, 1830)

ssp. *paludis* (Tutt, 1888)

SALTERN EAR

9831 [2357]. *Amphipoea lucens* (Freyer, 1845)

LARGE EAR

9832 [2359]. *Amphipoea crinanensis* (Burrows, 1908)

CRINAN EAR

9834 [2361]. *Hydraecia micacea* (Esper, 1789)

ROSY RUSTIC

9841 [2364]. *Gortyna flavago* ([Denis and Schiffermüller], 1775)

FROSTED ORANGE

9848 [2366]. *Calamia tridens* (Hufnagel, 1766)

ssp. *occidentalis* Cockayne, 1954

BURREN GREEN

9856 [2367]. *Celaena haworthii* (Curtis, 1829)

HAWORTH'S MINOR

9857 [2368]. *Helotropha leucostigma* (Hübner, 1808)

Synonym *Celaena leucostigma* (Hübner, 1808)

ssp. *leucostigma* (Hübner, 1808)

CRESCENT

9859 [2369]. *Nonagria typhae* (Thunberg, 1784)

BULRUSH WAINSCOT

9864 [2370]. *Lenisa geminipuncta* (Haworth, 1809)

Synonym *Archanara geminipuncta* (Haworth, 1809)

TWIN-SPOTTED WAINSCOT

***9866 [2371].** *Archanara dissoluta* (Treitschke, 1825)

BROWN-VEINED WAINSCOT

9867 [2373]. *Globia sparganii* (Esper, 1790)

Synonym *Archanara sparganii* (Esper, 1790)

WEBB'S WAINSCOT

9868 [2374]. *Globia algae* (Esper, 1789)

Synonym *Archanara algae* (Esper, 1789)

RUSH WAINSCOT

9890 [2379]. *Coenobia rufa* (Haworth, 1809)

SMALL RUFOUS

9895 [2145]. *Anarta trifolii* (Hufnagel, 1766)

Synonym *Discestra trifolii* (Hufnagel, 1766)

NUTMEG

9907 [2142]. *Anarta myrtilli* (Linnaeus, 1761)

BEAUTIFUL YELLOW UNDERWING

9917 [2160]. *Lacanobia oleracea* (Linnaeus, 1758)

BRIGHT-LINE BROWN-EYE

9918 [2158]. *Lacanobia thalassina* (Hufnagel, 1766)

PALE-SHOULDERED BROCADE

9919 [2156]. *Lacanobia contigua* ([Denis and Schiffermüller], 1775)

BEAUTIFUL BROCADE

9920 [2159]. *Lacanobia suasa* ([Denis and Schiffermüller], 1775)

DOG'S TOOTH

9925 [2147]. *Hada plebeja* (Linnaeus, 1761)

SHEARS

9928 [2164]. *Hecatera bicolorata* (Hufnagel, 1766)

BROAD-BARRED WHITE

9933 [2173]. *Hadena bicruris* (Hufnagel, 1766)

LYCHNIS

9935 [2169]. *Conisania luteago* ([Denis and Schiffermüller], 1775)

Synonym *Hadena luteago* ([Denis and Schiffermüller], 1775)

ssp. *barrettii* (Doubleday, 1864)

BARRETT'S MARBLED CORONET

9940 [2171]. *Hadena confusa* (Hufnagel, 1766)

MARBLED CORONET

9947 [2174]. *Hadena caesia* ([Denis and Schiffermüller], 1775)

ssp. *mananii* (Gregson, 1866)

GREY

9955 [2166]. *Sideridis rivularis* (Fabricius, 1775)

Synonym *Hadena rivularis* (Fabricius, 1775)

CAMPION

9957 [2167]. *Hadena perplexa* ([Denis and Schiffermüller], 1775)

ssp. *capsophila* (Duponchel, 1842)

POD LOVER

9969 [2152]. *Sideridis turbida* (Esper, 1790)

Synonym *Sideridis albicolon* (Hübner, [1813])

WHITE COLON

9972 [2153]. *Sideridis reticulata* (Goeze, 1781)

ssp. *hibernica* Cockayne, 1944

Synonym *Heliophobus reticulata* (Goeze, 1781)

BORDERED GOTHIC

9984 [2155]. *Melanchra persicariae* (Linnaeus, 1761)

DOT MOTH

9985 [2163]. *Ceramica pisi* (Linnaeus, 1758)

Synonym *Melanchra pisi* (Linnaeus, 1758)

BROOM MOTH

9987 [2154]. *Mamestra brassicae* (Linnaeus, 1758)

CABBAGE MOTH

9989 [2162]. *Papestra biren* (Goeze, 1781)

GLAUCOUS SHEARS

9991 [2148]. *Polia bombycina* (Hufnagel, 1766)

PALE SHINING BROWN

9993 [2150]. *Polia nebulosa* (Hufnagel, 1766)

GREY ARCHES

***9999 [2191].** *Mythimna turca* (Linnaeus, 1761)

DOUBLE LINE

10000 [2192]. *Mythimna conigera* ([Denis and Schiffermüller], 1775)

BROWN-LINE BRIGHT-EYE

10001 [2193]. *Mythimna ferrago* (Fabricius, 1787)

CLAY

10002 [2194]. *Mythimna albipuncta* ([Denis and Schiffermüller], 1775)

WHITE-POINT

10003 [2195]. *Mythimna vitellina* (Hübner, 1808)

DELICATE

10004 [2196]. *Mythimna pudorina* ([Denis and Schiffermüller], 1775)

STRIPED WAINSCOT

10005 [2197]. *Mythimna straminea* (Treitschke, 1825)

SOUTHERN WAINSCOT

10006 [2198]. *Mythimna impura* (Hübner, 1808)

SMOKY WAINSCOT

10007 [2199]. *Mythimna pallens* (Linnaeus, 1758)

COMMON WAINSCOT

10011 [2205]. *Leucania comma* (Linnaeus, 1761)

Synonym *Mythimna comma* (Linnaeus, 1761)

SHOULDER-STRIPED WAINSCOT

10021 [2201]. *Mythimna litoralis* (Curtis, 1827)

SHORE WAINSCOT

***10022 [2202].** *Mythimna l-album* (Linnaeus, 1767)

L-ALBUM WAINSCOT

10035 [2203]. *Mythimna unipuncta* (Haworth, 1809)

WHITE-SPECK

10034 [2208]. *Leucania loreyi* (Duponchel, 1827)

Synonym *Mythimna loreyi* (Duponchel, 1827)

COSMOPOLITAN

10037 [2188]. *Orthosia incerta* (Hufnagel, 1766)

CLOUDED DRAB

10038 [2190]. *Orthosia gothica* (Linnaeus, 1758)

HEBREW CHARACTER

10039 [2182]. *Orthosia cruda* ([Denis and Schiffermüller], 1775)

SMALL QUAKER

10041 [2183]. *Orthosia miniosa* ([Denis and Schiffermüller], 1775)

BLOSSOM UNDERWING

10042 [2184]. *Orthosia opima* (Hübner, 1809)

NORTHERN DRAB

10043 [2185]. *Orthosia populeti* (Fabricius, 1781)

LEAD-COLOURED DRAB

10044 [2187]. *Orthosia cerasi* (Fabricius, 1775)

COMMON QUAKER

10048 [2186]. *Orthosia gracilis* ([Denis and Schiffermüller], 1775)

POWDERED QUAKER

10050 [2189]. *Anorthoa munda* ([Denis and Schiffermüller], 1775)

Synonym *Orthosia munda* ([Denis and Schiffermüller], 1775)

TWIN-SPOTTED QUAKER

10052 [2179]. *Panolis flammea* ([Denis and Schiffermüller], 1775)

PINE BEAUTY

10062 [2176]. *Cerapteryx graminis* (Linnaeus, 1758)

ANTLER MOTH

10064 [2177]. *Tholera cespitis* ([Denis and Schiffermüller], 1775)

HEDGE RUSTIC

10065 [2178]. *Tholera decimalis* (Poda, 1761)

FEATHERED GOTHIC

10082 [2098]. *Axylia putris* (Linnaeus, 1761)

FLAME

10086 [2102]. *Ochropleura plecta* (Linnaeus, 1761)

FLAME-SHOULDER

10089 [2120]. *Diarsia mendica* (Fabricius, 1775)

ssp. *mendica* (Fabricius, 1775)

INGRAILED CLAY

10090 [2121]. *Diarsia dahlii* (Hübner, [1813])

BARRED CHESTNUT

10092 [2122]. *Diarsia brunnea* ([Denis and Schiffermüller], 1775)

PURPLE CLAY

10093 [2123]. *Diarsia rubi* (Vieweg, 1790)

SMALL SQUARE-SPOT

10096 [2107]. *Noctua pronuba* (Linnaeus, 1758)

LARGE YELLOW UNDERWING

10099 [2109]. *Noctua comes* (Hübner, [1813])

LESSER YELLOW UNDERWING

10100 [2110]. *Noctua fimbriata* (Schreber, 1759)

BROAD-BORDERED YELLOW UNDERWING

10103 [2111]. *Noctua janthe* (Borkhausen, 1792)

LESSER BROAD-BORDEREDYELLOW UNDERWING

10105 [2112]. *Noctua interjecta* Hübner, 1803

ssp. *caliginosa* Schawerda, 1919

LEAST YELLOW UNDERWING

10113 [2118]. *Lycophotia porphyrea* ([Denis and Schiffermüller], 1775)

TRUE-LOVER'S KNOT

10139 [2105]. *Rhyacia simulans* (Hufnagel, 1766)

DOTTED RUSTIC

10153 [2104]. *Standfussiana lucernea* (Linnaeus, 1758)

NORTHERN RUSTIC

10156 [2117]. *Eugnorisma glareosa* (Esper, 1788)

AUTUMNAL RUSTIC

10161 [2137]. *Eurois occulta* (Linnaeus, 1758)

GREAT BROCADE

10171 [2114]. *Graphiphora augur* (Fabricius, 1775)

DOUBLE DART

10194 [2125]. *Xestia alpicola* (Zetterstedt, 1839)

ssp. *alpina* (Humphreys and Westwood, 1843)

NORTHERN DART

10199 [2126]. *Xestia c-nigrum* (Linnaeus, 1758)

SETACEOUS HEBREW CHARACTER

10200 [2127]. *Xestia ditrapezium* ([Denis and Schiffermüller], 1775)

TRIPLE-SPOTTED CLAY

10201 [2128]. *Xestia triangulum* (Hufnagel, 1766)

DOUBLE SQUARE-SPOT

10204 [2130]. *Xestia baja* ([Denis and Schiffermüller], 1775)

DOTTED CLAY

10207 [2132]. *Xestia castanea* (Esper, 1798)

NEGLECTED RUSTIC

10211 [2133]. *Xestia sexstrigata* (Haworth, 1809)

SIX-STRIPED RUSTIC

10212 [2134]. *Xestia xanthographa* ([Denis and Schiffermüller], 1775)

SQUARE-SPOT RUSTIC

10216 [2135]. *Xestia agathina* (Duponchel, 1827)

ssp. *agathina* (Duponchel, 1827)

HEATH RUSTIC

10224 [2139]. *Cerastis rubricosa* ([Denis and Schiffermüller], 1775)

RED CHESTNUT

10228 [2136]. *Naenia typica* (Linnaeus, 1758)

GOTHIC

10232 [2138]. *Anaplectoides prasina* ([Denis and Schiffermüller], 1775)

GREEN ARCHES

10238 [2119]. *Peridroma saucia* (Hübner, 1808)

PEARLY UNDERWING

10244 [2099]. *Actebia praecox* (Linnaeus, 1758)

PORTLAND MOTH

10275 [2082]. *Euxoa nigricans* (Linnaeus, 1761)

GARDEN DART

10280 [2081]. *Euxoa tritici* (Linnaeus, 1761)

?Synonym *Euxoa nigrofusca* (Esper, 1788)

WHITE-LINE DART

10282 [2080]. *Euxoa obelisca* ([Denis and Schiffermüller], 1775)

ssp. *grisea* (Tutt, 1902)

SQUARE-SPOT DART

10284 [2083]. *Euxoa cursoria* (Hufnagel, 1766)

COAST DART

10336 [2094]. *Agrotis bigramma* (Esper, 1790)

Synonym *Agrotis crassa* (Hübner, 1803)

GREAT DART

10338 [2093]. *Agrotis ripae* Hübner, 1823

SAND DART

10343 [2092]. *Agrotis puta* (Hübner, 1803)

ssp. *puta* (Hübner, 1803)

SHUTTLE-SHAPED DART

10346 [2091]. *Agrotis ipsilon* (Hufnagel, 1766)

DARK SWORD-GRASS

10347 [2090]. *Agrotis trux* (Hübner, 1824)

CRESCENT DART

10348 [2089]. *Agrotis exclamationis* (Linnaeus, 1758)

HEART AND DART

10350 [2088]. *Agrotis clavis* (Hufnagel, 1766)

HEART AND CLUB

10351 [2087]. *Agrotis segetum* (Denis and Schiffermüller, 1775)

TURNIP MOTH

10356 [2085]. *Agrotis vestigialis* (Hufnagel, 1766)

ARCHER'S DART

10360 [2084]. *Agrotis cinerea* ([Denis and Schiffermüller], 1775)

ssp. *lunigera* Stephens, 1829

LIGHT FEATHERED RUSTIC

10372 [2425]. *Colocasia coryli* (Linnaeus, 1758)

NUT-TREE TUSSOCK

NOLIDAE

10429 [2078]. *Nola confusalis* (Herrich-Schäffer, 1847)

LEAST BLACK ARCHES

10441 [2423]. *Nycteola revayana* (Scopoli, 1772)

OAK NYCTEOLINE

10451 [2422]. *Pseudoips prasinana* (Linnaeus, 1758)

ssp. *britannica* Warren, 1913

GREEN SILVER-LINES

10456 [2418]. *Earias clorana* (Linnaeus, 1761)

CREAM-BORDERED GREEN PEA

CTENUCHIDAE

A [not allocated] **[.....].** *Antichloris steinbachi* Rothschild, 1909 (Importation)

A [not allocated] **[2074a].** *Antichloris eriphia* (Fabricius, 1777) (Importation)

EREBIDAE

[including former ARCTIIDAE and LYMANTRIIDAE]

10375 [2033]. *Lymantria monacha* (Linnaeus, 1758)

BLACK ARCHES

***10376 [2034].** *Lymantria dispar* (Linnaeus, 1758)

GYPSY MOTH

10387 [2028]. *Calliteara pudibunda* (Linnaeus, 1758)

PALE TUSSOCK

10392 [2027]. *Dicallomera fascelina* (Linnaeus, 1758)

DARK TUSSOCK

10397 [2026]. *Orgyia antiqua* (Linnaeus, 1758)

VAPOURER

10406 [2030]. *Euproctis similis* (Fuessly, 1775)

YELLOW-TAIL

10414 [2031]. *Leucoma salicis* (Linnaeus, 1758)

WHITE SATIN MOTH

10464 [2038]. *Nudaria mundana* (Linnaeus, 1761)

MUSLIN FOOTMAN

10466 [2035]. *Thumatha senex* (Hübner, 1808)

ROUND-WINGED MUSLIN

10475 [2037]. *Miltochrista miniata* (Forster, 1771)

ROSY FOOTMAN

10477 [2040]. *Cybosia mesomella* (Linnaeus, 1758)
FOUR-DOTTED FOOTMAN

10483 [2039]. *Atolmis rubricollis* (Linnaeus, 1758)
RED-NECKED FOOTMAN

10485 [2051]. *Lithosia quadra* (Linnaeus, 1758)
FOUR-SPOTTED FOOTMAN

10487 [2049]. *Eilema depressa* (Esper, 1787)
BUFF FOOTMAN

10488 [2044]. *Eilema griseola* (Hübner, 1803)
DINGY FOOTMEN

10489 [2050]. *Eilema lurideola* (Zincken, 1817)
COMMON FOOTMAN

10490 [2047]. *Eilema complana* (Linnaeus, 1758)
SCARCE FOOTMAN

10493 [2045]. *Eilema caniola* (Hübner, 1808)
HOARY FOOTMAN

***10499 [2043].** *Eilema sororcula* (Hufnagel, 1766)
ORANGE FOOTMAN

10509 [2036]. *Setina irrorella* (Linnaeus, 1758)
DEW MOTH

10535 [2054]. *Utetheisa pulchella* (Linnaeus, 1758)
CRIMSON SPECKLED

10550 [2064]. *Phragmatobia fuliginosa* (Linnaeus, 1758)
ssp. *fuliginosa* (Linnaeus, 1758)
RUBY TIGER

10557 [2056]. *Parasemia plantaginis* (Linnaeus, 1758)
ssp. *plantaginis* (Linnaeus, 1758)
WOOD TIGER

10566 [2061]. *Spilosoma lutea* (Hufnagel, 1766)

BUFF ERMINE

10567 [2060]. *Spilosoma lubricipeda* (Linnaeus, 1758)

WHITE ERMINE

10572 [2063]. *Diaphora mendica* (Clerck, 1759)

MUSLIN MOTH

10583 [2059]. *Diacrisia sannio* (Linnaeus, 1758)

CLOUDED BUFF

10598 [2057]. *Arctia caja* (Linnaeus, 1758)

GARDEN TIGER

10607 [2069]. *Tyria jacobaeae* (Linnaeus, 1758)

CINNABAR

Bulletin of the Irish Biogeographical Society **No. 36** (2012)

NEW IRISH RECORDS FOR *ANELASMOCEPHALUS CAMBRIDGEI* (WESTWOOD) (ARACHNIDA: OPILIONES)

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Introduction

Anelasmocephalus cambridgei (Westwood) is an inconspicuous mite-like harvestspider, usually recorded from leaf litter and moss. Irish records are summarised by Cawley (2002) who reports this animal from a handful of generally southern sites, as far north as Cos Galway and Wicklow. A Co. Sligo record is plotted by Hillyard (2005). Over recent years, the author has discovered a fair number of additional sites, often while sieving leaf litter and moss for spiders and pseudoscorpions. These are listed below, and suggest that *A. cambridgei* could be anticipated to occur in all parts of Ireland, although there are, as yet, no records from the north-east. New vice-county records are indicated using an asterisk *. The vice-county numbers are given in brackets.

New Irish records for *Anelasmocephalus cambridgei* (Westwood)

***SOUTH KERRY (H1)**: Baile an Ghóilín (V424991), 24 September 2008, in moss on a bank in planted woodland; Knockglass (Q710097), 18 October 2008, in moss on a stone wall bordering moorland.

WEST CORK (H3): Glengarriff (V9156), 7 July 2006, in moss on a tree trunk in mixed woodland; Leap (W201366), 26 September 2008, in leaf litter in mixed woodland.

MID CORK (H4): Coolacullig (W4573), 19 January 2006, in ground layer moss under beech *Fagus* at the edge of a conifer plantation; Monteen (W432470), 4 July 2008, in *Acer* leaf litter at the edge of a conifer plantation; Ballintemple, Cork City (W703710), 18 December 2003, sieved from moss in a disused limestone quarry; Currymount (R497098), 14 October 2009, in

leaf litter in planted woodland.

***LIMERICK (H8)**: Poultallin Point (R239520), 24 August 2008, among wood-rush *Luzula* in mixed woodland.

***CLARE (H9)**: Brian Boru's Fort, Killaloe (R696742), 8 November 2007, in moss in a moat surrounding ancient earthworks.

***NORTH TIPPERARY (H10)**: Monaincha (S168884), 4 May 2007, among sedges *Carex* in a ditch.

***WEXFORD (H12)**: McMurroughs (S730298), 6 June 2008, in leaf litter in mixed planted woodland.

***LAOIS (H14)**: Borris in Ossory (S250875), 26 March 2007, in moss on an old wall; Grantstown Wood (S3380), 29 May 2007, in ground layer moss in mixed woodland.

***KILDARE (H19)**: Moore Abbey Wood (N635089), 27 April 2007, in ground layer moss in mainly *Fagus* woodland.

***MEATH (H22)**: Hamwood (N987409), 20 October 2008, in leaf litter in mixed planted woodland.

***ROSCOMMON (H25)**: Spa (G798040), 30 April 2009, in moss on an old stone wall.

SLIGO (H28): Ballure (G741358), 11 April 2004, in moss on a calcareous hill; Cloghereevagh (G744349), 30 April 2004, in moss on calcareous grassland; Carns (G707341), 1 May 2009, among *Luzula* in mixed woodland; Ardcree Bridge (G642225), 2 May 2010, very frequent in moss, on a wall bordering mixed woodland.

***CAVAN (H30)**: Headford Wood (N5987), 14 June 2006, in leaf litter in mixed woodland.

***MONAGHAN (H32)**: Corlattan (H6531), 22 August 2005, in leaf litter and moss in *Fagus* woodland.

***EAST DONEGAL (H34)**: Trooper's Hill (H1295), 1 November 2005, in *Fagus* leaf litter in mixed woodland.

***WEST DONEGAL (H35)**: Beefpark (G887766), 3 July 2006, in moss in disturbed sand dunes.

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Bulletin of the Irish Biogeographical Society **No. 36** (2012)

NEW IRISH RECORDS FOR UNCOMMON ORTHOPTERA AND DERMAPTERA

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Introduction

Although all bush crickets are notably scarce in Ireland, there appears to be a definite increase in records over recent years, with new localities being documented by Speight (1999), O'Connor (2002, 2006) and Cawley (2005). A few additional records are detailed below, as is a new site for *Forficula lesnei* Finot. New vice-county records are indicated using an asterisk *. The vice-county numbers are given in brackets.

New records

***Meconema thalassinum* (De Geer) (Orthoptera)**

SOUTH-EAST GALWAY (H15): Garryland (M4202), 26 June 2006, a few nymphs, mainly beaten from buckthorn *Rhamnus cathartica* L. along the edge of woodland. The species was first reported from this site by Cotton (1980).

Although silent and inconspicuous, *Meconema thalassinum* would appear to be remarkably local in Ireland.

***Leptophyes punctatissima* (Bosc) (Orthoptera)**

EAST CORK (H5): Ballyannan Wood (W877718), 30 August 2010, gravid female beaten from an oak *Quercus* sapling, at the edge of mixed woodland, bordering an estuary.

WATERFORD (H6): Skehacrine (X277938), 10 June 2009, nymph beaten from the vegetation at the edge of a *Rubus* patch on sandy ground.

***SOUTH TIPPERARY (H7)**: Ferryhouse Bridge (S237229), 7 June 2007, nymphs beaten from path side vegetation along the River Suir. Adults were located here on 20 September 2007, all beaten from stinking tutsan *Hypericum hircinum* L.; Ballinderry (S365221), 31 August 2010,

male and gravid female, again beaten from *H. hircinum* on the banks of the River Suir.

KILKENNY (H11): Fiddown (S467198), 2 September 2010, single female beaten from yew *Taxus baccata* L. in an old graveyard. A nymph had been located here in May 2007, also beaten from *Taxus*.

Leptophyes punctatissima is by far the most frequently recorded Irish bush-cricket, but with a remarkably restricted distribution and only recorded from twenty two 10km squares.

***Conocephalus dorsalis* (Latreille) (Orthoptera)**

WEST CORK (H3): The Long Strand (W337338), 29 July 2010, numerous specimens in a small marsh, dominated by sea club-rush *Bolboschoenus maritimus* (L.) Palla, between the extreme south eastern end of the sand dunes and Longstrand Bridge.

***EAST CORK (H5)**: Ballycotton (W985646), 28 August 2010, a single male swept from *B. maritimus*, between a reed *Phragmites* stand and a shingle beach; Foxhole (X094800), 2 September 2010, male and female beaten from a narrow band of *B. maritimus* on reclaimed mudflats.

Conocephalus dorsalis was added to the Irish list when Brian C. Eversham found specimens in an estuary west of Skibbereen, Co. Cork (Marshall and Haes, 1988). The above new sites came to light after carefully checking coastal *Bolboschoenus* stands. This inconspicuous insect is essentially silent, and is likely to be greatly under recorded along the south coast.

***Forficula lesnei* Finot (Dermaptera)**

***SOUTH TIPPERARY (H7)**: Carrick-on-Suir (S406216), 2 September 2010, a single male under a piece of cardboard on a large area of waste ground bordering the River Suir. A small number of males and females were beaten from rank vegetation at this site on 15 September 2010.

Forficula lesnei is otherwise only known in Ireland from a stretch of the Co. Waterford coast, centred on Dungarvan (Cawley, 2005).

Discussion

The grand total of Irish 10km square records for bush-crickets now stands at thirty-eight,

which represents a doubling of the nineteen 10km square records plotted by Haes and Harding (1997). It is notable that most new sites refer to two silent, inconspicuous species, namely *Leptophyes punctatissima* and *Conocephalus dorsalis*. On the other hand, there are remarkably few new records for the more conspicuous *Pholidoptera griseoaptera* (De Geer) and especially *Metrioptera roeselii* (Hagenbach). *L. punctatissima* is likely to be under recorded along rivers in the extreme south-east, and the same could possibly apply to *F. lesnei*.

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Bulletin of the Irish Biogeographical Society **No. 36** (2012)

MORE RECORDS FOR UNCOMMON WEEVILS (COLEOPTERA: CURCULIONIDEA), INCLUDING *OMPHALAPION HOOKERI* KIRBY NEW TO IRELAND

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Introduction

A small amount of weevil collecting over recent years has turned up a few records for some of the less common species. These are listed below, and include records of *Omphalapion hookeri* Kirby which is an addition to the Irish fauna.

New records

Malvapion malvae (Fabricius)

Anderson (2007) was the first to collect *Malvapion malvae* (Fabricius) in Ireland, when he discovered specimens at Portraine, Co. Dublin. In 2011/2012, and with little effort, I encountered the species along the Dublin coast at Portmarnock (O240426), Sutton, (O252397, O264388), Raheny (O229383) and Sean Moore Park (O190331). At each site, *M. malvae* was frequent on *Malva sylvestris* L., and present in association with various combinations of *Pseudapion rufirostre* (Fabricius), *Aspidapion radiolus* (Marsham) and *Aspidapion aeneum* (Fabricius). *M. malvae* is clearly well established along the Co. Dublin coast, where this distinctive weevil must surely have been present for some time. At least until recently, it was absent from the coasts of Cos Cork and Waterford (Cawley, 2009).

Omphalapion hookeri Kirby **New to Ireland**

DUBLIN: Merrion (O196314), 26 July 2011, frequent on sea mayweed *Tripleurospermum maritimum* (L.) Koch, growing on a coastal bank. Subsequently the species was found on *T. maritimum* at Malahide (O216466), 5 September 2012 and Scotsman's Bay, Dún Laoghaire

(O249282), 20 September 2012, and is clearly widespread along the Dublin coast.

Omphalapion hookeri is widespread in England and Wales, especially in the south, and usually associated with *Tripleurospermum* (Morris, 1990).

***Pirapion immune* Kirby**

WEXFORD: Ballyhack (S7010), 6 May 2005, on broom *Cytisus scoparius* L. in a coastal hedgerow. The only recent records appear to be those of Morris (1997).

***Otiorhynchus porcatus* (Herbst)**

MAYO: Charlestown (G476020), 14 July 2012, under rubble on waste ground.

WESTMEATH: Coosan (N0443), 22 March 2012, under a stone on a dry roadside bank.

***Polydrusus pulchellus* Stephens**

DUBLIN: Sutton (O252397), 19 July 2011, beaten from sea-purslane *Halimione portulacoides* (L.) Aellen in a saltmarsh.

Polydrusus pulchellus is a saltmarsh specialist, recently reported from Ireland by Owen (1997), Anderson (2009) and Telfer (2009).

***Brachysomus echinatus* (Boheman)**

SLIGO: Beanfield (G652312), 27 July 2012, three specimens beaten from hazel *Corylus avellana* L. in a coastal hedgerow.

Brachysomus echinatus is a very distinctive-looking weevil, reported from six counties by Johnson and Halbert (1902). However, according to Morris (1993), there have been no subsequent records.

***Barypeithes araneiformis* (Schrank)**

SLIGO: Ballygawley (G6827), 20 April 2012, Male and female *in cop*., under a piece of wood in open beech *Fagus* woodland.

***Strophosoma nebulosum* Stephens**

CORK: Ballycotton (W9963), 28 August 2910, a singleton at the base of vegetation on a cliff top heath.

***Anoplus roboris* Suffrian**

SLIGO: Bunduff (G7055), 13 June 2012, a few specimens beaten from alder *Alnus glutinosa*

(L.) at the edge of machair grassland.

***Comasinus setiger* (Beck)**

CORK: Poulgorm Bridge (W210353), 27 February 2008, in leaf litter in disturbed mixed woodland.

***Trichosirocalus dawsoni* (Brisout)**

SLIGO: Streedagh (G629499), 20 August 2010, frequent on sea plantain *Plantago maritima* L. on a sea bank.

***Mecinus pascuorum* (Gyllenhal)**

DUBLIN: Portmarnock (O242427), 30 June 2011, beaten from vegetation on waste ground.

Mecinus pascuorum is a widespread species in Britain but a noted rarity in Ireland, only reported from two sites in Co. Kerry (Morris, 1993).

***Sitophilus granarius* (L.)**

MEATH: Ashbourne (O0652), 11 September 2002, sieved from debris collected inside a derelict grain store.

***Stenopelmus rufinasus* Gyllenhal**

LIMERICK: Limerick (R581574), 10 October 2009, among water fern *Azolla filiculoides* Lam. in a canal.

Stenopelmus rufinasus is otherwise known in Ireland from single sites in Co. Fermanagh (Nelson, 2007) and Co. Cork (Cawley, 2009; Baars and Caffrey, 2010).

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A REVISED CHECKLIST OF THE BITING MIDGES (DIPTERA: CERATOPOGONIDAE) OF IRELAND

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Abstract

The Irish fauna of Ceratopogonidae is reviewed and detailed records are given for all 78 included species based on both published and unpublished data. The following ten species are recorded from Ireland for the first time:- *Dasyhelea* (*Dasyhelea*) *flavifrons* (Guérin, 1833); *Dasyhelea* (*Dicryptoscena*) *modesta* (Winnertz, 1852); *D.* (*Di.*) *notata* Goetghebuer, 1920; *Atrichopogon* (*Atrichopogon*) *pavidus* (Winnertz, 1852); *A.* (*Meloehelea*) *lucorum* (Meigen, 1818); *Forcipomyia* (*Caloforcipomyia*) *glauca* Macfie, 1934; *Forcipomyia* (*Forcipomyia*) *ciliata* (Winnertz, 1852); *F.* (*F.*) *nigra* (Winnertz, 1852); *F.* (*F.*) *radicicola* Edwards, 1924 and *F.* (*F.*) *sphagnophila* Kieffer, 1925. One of these, *D.* (*Di.*) *notata*, is also new to the British Isles but has not been found in Britain. One species, *Mallochohelea nitida* (Macquart, 1826) tentatively listed as an Irish species, is not confirmed and is therefore deleted from the checklist.

Introduction

Haliday (1833) was the first paper to include Irish Ceratopogonidae, mentioning 21 named species (Table 1). Three of these were described as new to science *viz. Ceratopogon gracilis* Haliday, *Ceratopogon brachialis* Haliday and *Ceratopogon distinctus* Haliday. Walker (1856) listed 11 species of Ceratopogonidae from Ireland (Table 2), all in the genus *Ceratopogon* and including two species previously undescribed by Haliday i.e. *Ceratopogon calceatus* Haliday and *Ceratopogon taeniatus* Haliday. These are the only two 19th Century publications that contain records of Irish ceratopogonids. Information about A. H. Haliday's life, collection and

publications is detailed in Nash and O'Connor (2011).

During the period 1900 to 1980, most of the relevant literature for Ireland (Yerbury, 1902; Grimshaw, 1912; Edwards, 1926, 1929a, b; Edwards *et al*., 1939; Hill, 1947; Jackson, 1947; Khalaf, 1954; Healy, 1975, 1977; Speight and Healy, 1977; Kelly and Walton, 1977) contain from one to a few records only and include common species, first published Irish records, and some repetition of previously published information.

In the late 1970's and early 1980's, Pamela Townley investigated the *Culicoides* species occurring on the island. The results were included in a M.Sc. thesis (Townley, 1981). Townley *et al*. (1984) published the results of a study on the preferential landing and engorging sites of *Culicoides* species on a horse in Ireland. Boorman (1986) gave a detailed account of the *Culicoides* species occurring in the British Isles and the majority of the Irish records were based on the data in Townley's (1981) unpublished thesis. Boorman (*op. cit.*) did not provide detailed localities or dates but instead used a numbering system for the Irish counties. However, sometimes, there are errors in these numbers and no equivalent county record can be found in Townley (1981).

Between 1987 and 1997, a few papers (Blackith and Blackith, 1989; Borkent and Bissett, 1990; Blackith *et al.*, 1991) contained a few relevant ceratopogonid records for Ireland.

The first definitive checklist of Irish Ceratopogonidae was published in Ashe *et al*. (1998) where 51 species were listed. This total compared very unfavourably with the then British one of 161 species. The same 51 species were listed in Chandler (1998) who also included three additional queried species i.e. *Mallochohelea nitida* (Macquart, 1826), *Sphaeromias fasciatus* (Meigen, 1804) and *Forcipomyia* (*Forcipomyia*) *bipunctata* (Linnaeus, 1767). *M. nitida* is listed in Walker (1856: 225-226, sub *Ceratopogon nitidus*) as "(E. S. I.)" where the "I" is an abbreviation for Ireland but it is not listed in Haliday (1833) or Haliday's ms *Catalogue of Irish insects*. In the National Museum of Ireland, there is a single pin bearing a green label with "Ireland" printed in black but there is no specimen. The species is queried for Ireland in Chandler (1998) and Chandler, O'Connor and Nash (2008). There is nothing published earlier by Haliday or in his ms *Catalogue* on this species. In addition, there is no supporting locality

data or specimens. As a result, the record in Walker (1856), probably based on data supplied by Haliday, cannot be confirmed and the species is not included in the new Irish checklist. However, we do expect that the species will eventually be found here. The other two queried species, *S. fasciatus* and *F.* (*F.*) *bipunctata*, are included in the new Irish checklist.

Additional species were added by Ashe and O'Connor (2002), Ashe *et al*. (2002, 2007), Chandler, Ashe and O'Connor (2008) and these are included in the checklist in Chandler, O'Connor and Nash (2008). Subsequently, Chandler and O'Connor (2010), Alexander and Chandler (2010) and Donnithorne (2010) reported further species new to the island.

Bluetongue is an infectious, non-contagious, arthropod-borne virus disease which affects ruminant vertebrates (including cattle and sheep) and is transmitted by certain species of *Culicoides* midge (McCarthy *et al*., 2008). The disease was reported for the first time, in several Northern European countries in August 2006, in the area where Belgium, the Netherlands and Germany share borders. It was rapidly and widely disseminated with outbreaks subsequently being reported in France and Luxembourg in 2006. In 2007 and 2008, outbreaks were also reported in the United Kingdom. These were restricted to eastern England and fortunately, there were no outbreaks in Ireland. The sole Irish case of Bluetongue Virus, which was reported in the media at the time, occurred in February 2008 when tests on a dairy cow in Co. Antrim, Northern Ireland, were positive. However, the animal had been imported from the Netherlands where it picked up the disease. At present, Ireland remains free of Bluetongue Virus.

Bluetongue Virus is a serious notifiable agricultural disease which quickly affects livestock such as cattle and sheep. Because of the potential risk to farm livestock in Ireland, a three year monitoring and surveillance programme of *Culicoides* midges was started in the Spring of 2007 and completed in 2010. This work resulted in three successive annual reports (McCarthy *et al*., 2008, 2009, 2010). Although this *Culicoides* monitoring and surveillance programme, with 29 species listed, was the largest such investigation even undertaken in Ireland, the data is not in a form that can be used in this paper for the following reasons:- (a) a map with dots showing where samples were collected is provided but no collection dates, localities or grid references are given; (b) there is no table giving the flight period for each species for the three year

duration of the study and (c) there is no table giving the site number(s) where each species was recorded for the three year duration of the study. We hope in a future paper, based on unpublished data, to provide a comprehensive account of all the *Culicoides* species and records from the above surveys by including the county, flight period, locality, grid reference and 50km UTM square reference. In this same paper, we intend to include UTM maps showing the known distribution of all 78 species of Ceratopogonidae known from Ireland.

Some of the species added here as new to Ireland were identified using descriptions and illustrations of the British species in an unpublished manuscript prepared by Dr John Boorman. The discovery of *Dasyhelea notata* in Ireland increases the total number of Ceratopogonidae in the British Isles to 171 species. Of these 171 species, 169 are found in Britain and 78 occur in Ireland. Two of the Irish species, *Bezzia taeniata* and *D. notata*, have not yet been found in Britain. A lot more work needs to be done on the Irish ceratopogonid fauna and the majority, if not all, of the 93 additional species found in the Britain should occur here.

Materials and methods

The Irish national grid reference (six, four or two figure reference) is included where possible followed by the Universal Transverse Mercator [UTM] 50km grid reference in parentheses. The method used to obtain the UTM reference is described in Rasmont *et al.* (1986). However, it is now easier to calculate the relevant 50km UTM square using the UTM grid map for Ireland (Fig. 3) in conjunction with an online website map <http://www.lepidoptera.pl/ UTM_Europe.php> with a zoom in and out facility which overlays a red 100km grid square (sub-divided into 10km squares) on any selected location in Ireland.

List of collectors and abbreviations used for collectors' names

P. Ashe = PA; K. Baker = KB; R. Beamish = RB; R. E. Blackith = REB; R. M. Blackith = RMB; J. Breen = JB; P. A. Buxton = PAB; P. J. Chandler = PJC; J. H. Cole = JHC; F. W. Edwards = FWE; P. H. Grimshaw = PHG; J. N. Halbert = JNH; A. H. Haliday = AHH; B. Healy = BH; T. C. Kelly = TCK; J. J. F. X. King = JJFXK; C. G. Lamb = CGL; W. Lindsay =

WL; P. S. Mellor = PSM; C. Morley = CM; A. Morrow = AM; J. P. O'Connor = JPOC; J. P. O'Connor and M. A. O'Connor = JMOC; E. C. Pelham-Clinton = ECPC; P. Rawlings = PR; W. Ruttledge = WR; M. C. D. Speight = MCDS; A. W. Stelfox = AWS; P. Townley = PT; G. A. Walton = GAW; J. W. Yerbury = JWY.

Checklist of Irish Ceratopogonidae (* = species new to Ireland)

Family CERATOPOGONIDAE

Subfamily CERATOPOGONINAE

Tribe Ceratopogonini

Ceratopogon grandiforceps (Kieffer, 1913)

Ceratopogon lacteipennis Zetterstedt, 1838

Kolenohelea sharpi (Edwards, 1929)

Neurohelea luteitarsis (Waltl, 1837)

Schizohelea leucopeza (Meigen, 1804)

Serromyia atra (Meigen, 1818)

Serromyia femorata (Meigen, 1804)

Serromyia morio (Fabricius, 1775)

Stilobezzia (*Acanthohelea*) *gracilis* (Haliday, 1833)

Stilobezzia (*Acanthohelea*) *lutacea* Edwards, 1926

Tribe Culicoidini

Culicoides (*Avaritia*) *chiopterus* (Meigen, 1830)

Culicoides (*Avaritia*) *dewulfi* Goetghebuer, 1936

Culicoides (*Avaritia*) *obsoletus* (Meigen, 1818)

Culicoides (*Avaritia*) *scoticus* Downes and Kettle, 1952

Culicoides (*Beltranmyia*) *circumscriptus* Kieffer, 1918

Culicoides (*Beltranmyia*) *salinarius* Kieffer, 1914

Culicoides (*Culicoides*) *delta* Edwards, 1939

Culicoides (*Culicoides*) *grisescens* Edwards, 1939

Culicoides (*Culicoides*) *impunctatus* Goetghebuer, 1920

Culicoides (*Culicoides*) *newsteadi* Austen, 1921

Culicoides (*Culicoides*) *pulicaris* (Linnaeus, 1758)

Culicoides (*Culicoides*) *punctatus* (Meigen, 1804)

Culicoides (*Monoculicoides*) *nubeculosus* (Meigen, 1830)

Culicoides (*Monoculicoides*) *parroti* Kieffer, 1922

Culicoides (*Monoculicoides*) *riethi* Kieffer, 1914

Culicoides (*Monoculicoides*) *stigma* (Meigen, 1818)

Culicoides (*Oecacta*) *brunnicans* Edwards, 1939

Culicoides (*Oecacta*) *duddingstoni* Kettle and Lawson, 1955

Culicoides (*Oecacta*) *festivipennis* Kieffer, 1914

Culicoides (*Oecacta*) *furcillatus* Callot, Kremer and Paradis, 1962

Culicoides (*Oecacta*) *heliophilus* Edwards, 1921

Culicoides (*Oecacta*) *kibunensis* Tokunaga, 1937

Culicoides (*Oecacta*) *pictipennis* (Staeger, 1839)

Culicoides (*Oecacta*) *poperinghensis* Goetghebuer, 1953

Culicoides (*Oecacta*) *reconditus* Campbell and Pelham-Clinton, 1960

Culicoides (*Oecacta*) *segnis* Campbell and Pelham-Clinton, 1960

Culicoides (*Oecacta*) *vexans* (Staeger, 1839)

Culicoides (*Silvaticulicoides*) *achrayi* Kettle and Lawson, 1955

Culicoides (*Silvaticulicoides*) *fascipennis* (Staeger, 1839)

Culicoides (*Silvaticulicoides*) *pallidicornis* Kieffer, 1919

Tribe Heteromyiini

Clinohelea (*Clinohelea*) *unimaculata* (Macquart, 1826)

Tribe Palpomyiini

Bezzia (*Bezzia*) *kazlauskasi* Remm, 1966

Bezzia (*Bezzia*) *nobilis* (Winnertz, 1852)

Bezzia (*Bezzia*) *ornata* (Meigen, 1830)

Bezzia (*Homobezzia*) *annulipes* (Meigen, 1830)

Bezzia (*Homobezzia*) *circumdata* (Staeger, 1839)

Bezzia (*Homobezzia*) *leucogaster* (Zetterstedt, 1850)

Bezzia (*Homobezzia*) *taeniata* (Haliday, 1856)

Bezzia (*Pygobezzia*) *calceata* (Haliday, 1856)

Palpomyia brachialis (Haliday, 1833)

Palpomyia distincta (Haliday, 1833)

Palpomyia flavipes (Meigen, 1804)

Palpomyia lineata (Meigen, 1804)

Palpomyia luteifemorata Edwards, 1926

Palpomyia praeusta (Loew, 1869)

Palpomyia serripes (Meigen, 1818)

Palpomyia spinipes (Meigen, 1806)

Palpomyia tinctipennis Kieffer, 1919

Tribe Sphaeromiini

Probezzia seminigra (Panzer, 1798)

Sphaeromias fasciatus (Meigen, 1804)

Subfamily DASYHELEINAE

Dasyhelea (*Dasyhelea*) *bilineata* Goetghebuer, 1920

**Dasyhelea* (*Dasyhelea*) *flavifrons* (Guérin, 1833)

**Dasyhelea* (*Dicryptoscena*) *modesta* (Winnertz, 1852)

**Dasyhelea* (*Dicryptoscena*) *notata* Goetghebuer, 1920

Dasyhelea (*Pseudoculicoides*) *turficola* Wirth, 1976

Subfamily FORCIPOMYIINAE

**Atrichopogon* (*Atrichopogon*) *pavidus* (Winnertz, 1852)

Atrichopogon (*Lophomyidium*) *rostratus* (Winnertz, 1852)

**Atrichopogon* (*Meloehelea*) *lucorum* (Meigen, 1818)

**Forcipomyia* (*Caloforcipomyia*) *glauca* Macfie, 1934

Forcipomyia (*Forcipomyia*) *bipunctata* (Linnaeus, 1767)
Forcipomyia (*Forcipomyia*) *brevipennis* (Macquart, 1826)
**Forcipomyia* (*Forcipomyia*) *ciliata* (Winnertz, 1852)
**Forcipomyia* (*Forcipomyia*) *nigra* (Winnertz, 1852)
Forcipomyia (*Forcipomyia*) *pulchrithorax* Edwards, 1924
**Forcipomyia* (*Forcipomyia*) *radicicola* Edwards, 1924
**Forcipomyia* (*Forcipomyia*) *sphagnophila* Kieffer, 1925
Forcipomyia (*Panhelea*) *aristolochiae* (Rondani, 1860)
Forcipomyia (*Pterobosca*) *paludis* (Macfie, 1936)

Family CERATOPOGONIDAE

Subfamily CERATOPOGONINAE

Tribe Ceratopogonini

***Ceratopogon grandiforceps* (Kieffer, 1913)**

Added to the Irish list in Chandler, Ashe and O'Connor (2008), based on adult male specimens from the two localities listed below.

DONEGAL: May 1995, Lough Eske [NA.3], PR (Chandler, Ashe and O'Connor, 2008); **WICKLOW**: 20 May–3 June 1990, Blackditch Wood (O3103) [PU.3], REB/RMB, Malaise trap sample (Chandler, Ashe and O'Connor, 2008).

***Ceratopogon lacteipennis* Zetterstedt, 1838**

First recorded from Ireland in Chandler, Ashe and O'Connor (2008) based on one male specimen from the Co. Wicklow locality detailed below.

WICKLOW: 23 June 1975, Wicklow Gap (O0-0-) [PU.3], PJC (Chandler, Ashe and O'Connor, 2008).

***Kolenohelea sharpi* (Edwards, 1929)**

The species was described by Edwards (1929b) as *Stilobezzia sharpi* - his earlier use of the name *Monohelea calcarata* Goetghebuer in Edwards (1929a) for this species was a misidentification. The Killarney specimen, an adult male, is a paratype and is probably

preserved in the collections of the Natural History Museum (London).

KERRY: 24-27 May 1929, Killarney [MT.3], FWE (Edwards, 1929a, sub *Monohelea calcarata* Goetghebuer (misidentified); Edwards, 1929b, sub *Stilobezzia sharpi*); **OFFALY**: 14 June 1983, roadside ditch at Mongan Bog, near Clonmacnoise (N028302) [NV.4], PA.

***Neurohelea luteitarsis* (Waltl, 1837)**

This is said to be a very rare European species which apart from Ireland is only known from Belgium, the Czech Republic, Germany and Great Britain. In Germany, it has not been found since its original description in 1837 and it is suggested that it may be extinct there (Tóthová *et al*., 2009) but we think this is unlikely. In Britain, it is a fairly common species (known from Cornwall in the south-west to Inverness in the north of Scotland). The three records below show that it is widespread in Ireland.

ARMAGH: 15 July 1971, in a conifer plantation, Newry Forest (J0-2-) [PA.4], PJC (Ashe *et al*., 2002); **KERRY**: 4 July 1969, in a wooded bog, Owenreagh River valley (V8779) [MT.3], PJC (Ashe *et al*., 2002); **WICKLOW**: 24 June 1975, in mixed woodland, Whaley Abbey (T1784) [PU.3], PJC (Ashe *et al*., 2002).

***Schizohelea leucopeza* (Meigen, 1804)**

GALWAY: 23 June 1997, Maumwee Lough, near Maam Cross (L9748) [MV.4], PA; **WESTMEATH**: 28 June 1987, on the open shore, Lough Ballynafid (N4160) [PV.2], PJC (Ashe *et al*., 2002).

***Serromyia atra* (Meigen, 1818)**

First recorded from Ireland in Chandler, Ashe and O'Connor (2008) based on adult male specimens collected from the two Co. Westmeath localities detailed below.

WESTMEATH: 16 June 1985, Lough Patrick (N4263) [PV.2], PJC (Chandler, Ashe and O'Connor, 2008); 28 June 1987, Lough Ballynafid (N4160) [PV.2], PJC (Chandler, Ashe and O'Connor, 2008).

***Serromyia femorata* (Meigen, 1804)**

In Borkent and Bissett (1990: 182, Fig. 19A), there is a map of Europe showing the distribution of *S. femorata* which includes a black dot located in south-west Ireland which

appears to be centred on the Killarney area in Co. Kerry. However, exact details of this record are not given. The most likely possibility is that it is a specimen collected by F. W. Edwards that may be preserved in the collections of the Natural History Museum, London.

CLARE: 6 June 1962, Ballyvaughan M1-0- [MU.3], 1 female at light, ECPC; **KERRY**: 7 May 1981, Ross Island (V9489) [MT.3], 1 female, PJC; 9 May 1981, Torc Cascade (V9684) [MT.3], 1 male, PJC; **LAOIS**: 26 June 1987, near Annaghmore Lough (N3-1-) [NU.3], 1 female, PJC; **LEITRIM**: 25 August 1992, Glencar Waterfall (G7643) [NA.2], JPOC; **MAYO**: 10 June 1909, Clare Island [MV.1], JNH (Grimshaw, 1912); June 1909, Glendarary, Glendaree or Glendarie, Achill Island [MV.1], JNH (Grimshaw, 1912); 11 June 1985, Louisburgh, field below Old Head Hotel (L8382) [MV.1], 1 female, PJC; **OFFALY**: 26 June 1987, Slieve Bloom (N2-0-) [NU.3], PJC; **WESTMEATH**: 16 June 1985, Lough Patrick (N4263) [PV.2], 1 female, PJC; 16 June 1985, Lough Ballynafid (N4160) [PV.2], 1 female, PJC; 28 June 1987, Glen Lough (N2866) [NV.4], 1 female, PJC; 28 June 1987, Scragh Bog (N4259) [PV.2], 2 females, PJC; **WEXFORD**: 9 June 1986, willow *Salix* marsh at Nethertown (T125050) [PT.3], JMOC; **WICKLOW**: 27 June 1975, Glendalough (T1296) [PU.3], 1 female, PJC; 26 May 1984, near Carrigower (O2208) [PU.3], 1 male, PJC; July 1989, Blackditch Wood (O3103) [PU.3], REB/RMB (Blackith *et al*., 1991).

***Serromyia morio* (Fabricius, 1775)**

Specimens from the Blackditch Wood locality were bred from mossy woodland litter and those from Killoughter fen from *Phragmites* stem bases (Blackith *et al*., 1991).

MEATH: 19 May 1991, Kilmessan (N8857) [PV.4], JMOC; **WEXFORD**: 5 June 1986, Ballyteige sand dunes (S9504) [PT.3], JMOC; **WICKLOW**: May-July 1989, Blackditch Wood (O3103) [PU.3], REB/RMB (Blackith *et al*., 1991); May 1989, Killoughter fen (T3199) [PU.3], REB/RMB (Blackith *et al*., 1991).

***Stilobezzia* (*Acanthohelea*) *gracilis* (Haliday, 1833)**

There are five Haliday specimens preserved in the National Museum of Ireland, of which four are definitely Irish and are types. All four Irish specimens have (i) a green label with "Ireland" printed in black ink and (ii) a white label printed in black ink with the wording

"Haliday 20.2.'82" which is the museum accession date of the 20 February 1882. Two of the specimens also have a white label bearing the wording "*gracilis* H" written in brown ink in Haliday's handwriting.

One specimen has two further labels: (a) a white label with the word "TYPE" written in black ink and underlined in green and (b) a white label with the wording "*Ceratopogon gracilis* Haliday des. lectotype 29/9/2000 P. J. Chandler" mostly handwritten in black ink except that "P. J. Chandler" is printed. The lectotype designation was never published and the above specimen is therefore designated here as lectotype. The remaining three Irish specimens are labelled as paralectotypes.

DOWN: 1827-1831, Holywood [UF.1], AHH (Haliday, 1833, sub *Ceratopogon gracilis*; Walker, 1856, sub *Ceratopogon gracilis*); **KILDARE**: 14 July 1990, Pollardstown Fen (N772155) [PU.1], PA; **LOUTH**: 29 June 1975, mixed woods at Thomastown (N9-9-) [PV.3], 4 females, PJC; 29 June 1975, alder marsh at Ballymascanlon Swamp (J0-1-) [PV.3], 1 female, PJC; **WATERFORD**: 21 June 1975, Gurteen Forest, (S2-2-) [NU.4], 1 male, PJC; **WEXFORD**: 8 August 2006, beside a stream in woodland, Oaklands Wood (S7125) [PU.2], JPOC; **WICKLOW**: 23 June 1975, Devil's Glen (T2-9-) [PU.3], 1 female, PJC; 26 June 1975, Whaley Abbey (T1784) [PU.3], 2 females, PJC; 17 June 1985, Knocksink Wood (O2117) [PU.3], 1 female, PJC.

***Stilobezzia* (*Acanthohelea*) *lutacea* Edwards, 1926**

Recorded as new to Ireland in Ashe *et al*., (2002) based on a single adult female specimen. **TIPPERARY**: 22 June 1975, at Marl Bog near Dundrum (R9544) [NU.4], PJC (Ashe *et al*., 2002).

Tribe Culicoidini

***Culicoides* (*Avaritia*) *chiopterus* (Meigen, 1830)**

DONEGAL: May 1961, Kildoney Point, Ballyshannon (G830640) [NA.2], ECPC (Townley, 1981; Boorman, 1986); **DUBLIN**: September-November 1979, June-November 1980, Chantilly, Shankill (O241219) [PV.4], PT and AM (Townley, 1981; Boorman, 1986); July 1979, Kiltiernan (O210216) [PV.4], PT (Townley, 1981; Boorman, 1986); July-August 1980,

Trinity College (O150335) [PV.4], PT (Townley, 1981; Boorman, 1986); **KERRY**: 1-13 July 1979, Lough Derriana (V629741) [MT.1], JPOC (Townley, 1981; Boorman, 1986); **KILDARE**: October 1976, Newbridge (N805150) [PU.1], PT (Townley, 1981); **LAOIS**: June 1978, Ballaghmore (S240880) [NU.3], PT (Townley, 1981; Boorman, 1986); July-August 1981, on a bait horse in a mixed farming area, Ballaghmore (S240880) [NU.3], PT (Townley *et al*., 1984); **LIMERICK**: August-September 1973, Pallaskenry (R413550) [NU.2], JB (Townley, 1981); **LOUTH**: May-September 1978, May-September 1979, Townley Hall, Drogheda (O025770) [PV.3], PT (Townley, 1981; Boorman, 1986); **MAYO**: July-August 1980, Glenamoy (F880326) [MA.4], WL (Townley, 1981; Boorman, 1986); **MEATH**: May 1979, White Cross (O140688) [PV.3], PT (Townley, 1981; Boorman, 1986); **WEXFORD**: June 1978, Aske, Gorey (T138588) [PU.4], PT (Townley, 1981; Boorman, 1986); **WICKLOW**: July 1978, Ballinaclash (T180854) [PU.3], PT (Townley, 1981; Boorman, 1986).

***Culicoides* (*Avaritia*) *dewulfi* Goetghebuer, 1936**

DUBLIN: June 1979, Ashtown (O109371) [PV.4], PT (Townley, 1981; Boorman, 1986); September-November 1979, June-November 1980, Chantilly, Shankill (O241219) [PV.4], PT and AM (Townley, 1981; Boorman, 1986); June 1979, September 1979, July 1979, Kiltiernan (O210216) [PV.4], PT (Townley, 1981; Boorman, 1986); June 1979, September 1979, Trinity College (O150335) [PV.4], PT (Townley, 1981; Boorman, 1986); **KERRY**: July 1979, Lough Derriana (V629741) [MT.1], JPOC (Townley, 1981; Boorman, 1986); August 1980, Reenard Cross (V460781) [MT.1], PT (Townley, 1981; Boorman, 1986); August 1980, Slea Head (V335970) [MT.1], PT (Townley, 1981; Boorman, 1986); **KILDARE**: August 1979, The Curragh (N790139) [PU.1], PT (Townley, 1981; Boorman, 1986); **LAOIS**: June 1978, Ballaghmore (S240880) [NU.3], PT (Townley, 1981; Boorman, 1986); July-August 1981, on a bait horse in a mixed farming area, Ballaghmore (S240880) [NU.3], PT (Townley *et al*., 1984); **LIMERICK**: August-September 1973, Pallaskenry (R413550) [NU.2], JB (Townley, 1981; Boorman, 1986); **LOUTH**: May-September 1978, May-September 1979, Townley Hall, Drogheda (O025770) [PV.3], PT (Townley, 1981; Boorman, 1986); **MAYO**: July-August 1980, Glenamoy (F880326) [MA.4], WL (Townley, 1981; Boorman, 1986); **MEATH**: July-August

1979, White Cross (O140688) [PV.3], PT (Townley, 1981; Boorman, 1986); **WEXFORD**: June 1978, Aske, Gorey (T138588) [PU.4], PT (Townley, 1981; Boorman, 1986); June 1978, Killoughrim Forest (S900412) [PU.4], PT (Townley, 1981; Boorman, 1986); **WICKLOW**: July 1978, Ballinaclash (T180854) [PU.3], PT (Townley, 1981; Boorman, 1986); June 1978, Greystones (O280130) [PU.3], KB (Townley, 1981; Boorman, 1986).

***Culicoides* (*Avaritia*) *obsoletus* (Meigen, 1818)**

The record in Blackith and Blackith (1989) from Co. Wicklow is based on reared adult specimens that emerged in the summer from samples of rotting potatoes collected in February 1988.

DUBLIN: September-November 1979, June-November 1980, Chantilly, Shankill (O241219) [PV.4], PT and AM (Townley, 1981; Boorman, 1986); July 1979, Kiltiernan (O210216) [PV.4], PT (Townley, 1981; Boorman, 1986); August 1979, Lucan (O034351) [PV.4], PT (Townley, 1981; Boorman, 1986); June 1979, June-July 1980, Trinity College (O150335) [PV.4], PT (Townley, 1981; Boorman, 1986); **GALWAY**: 8 September 1979, Doorosbeg Point (R787947) [NU.1], JPOC (Townley, 1981; Boorman, 1986); **KERRY**: August 1980, Camp, Dingle (Q709095) [MT.1], PT (Townley, 1981; Boorman, 1986); August 1980, Dunquin, Dingle (Q3200) [MT.1], PT (Townley, 1981; Boorman, 1986); August 1980, Glenbeigh, (V670908) [MT.1], PT (Townley, 1981; Boorman, 1986); August 1980, August 1980, Killorglin, (V775950) [MT.1], PT (Townley, 1981; Boorman, 1986); August 1980, Lispole, Dingle (Q520011) [MT.1], PT (Townley, 1981; Boorman, 1986); August 1980, Lower Lough Leane, Killarney (V850885) [MT.3], PT (Townley, 1981; Boorman, 1986); July 1979, Lough Derriana (V629741) [MT.1], JPOC (Townley, 1981; Boorman, 1986); August 1980, Reenard Cross (V460781) [MT.1], PT (Townley, 1981; Boorman, 1986); August 1980, Slea Head (V335970) [MT.1], PT (Townley, 1981; Boorman, 1986); August 1980, Ventry, (V390997) [MT.1], PT (Townley, 1981; Boorman, 1986); August 1980, Waterville (V502648) [MT.2], PT (Townley, 1981; Boorman, 1986); **KILDARE**: October 1976, Newbridge (N805150) [PU.1], PT (Townley, 1981); **KILKENNY**: June 1978, Inistioge (S633372) [PU.2], PT (Townley, 1981; Boorman, 1986); **LAOIS**: June 1978, Ballaghmore (S240880) [NU.3], PT (Townley, 1981;

Boorman, 1986); July-August 1981, on a bait horse in a mixed farming area, Ballaghmore (S240880) [NU.3], PT (Townley *et al*., 1984); **LIMERICK**: July-September 1973, August 1974, Pallaskenry (R413550) [NU.2], JB (Townley, 1981; Boorman, 1986); **LOUTH**: May-November 1978, May-September 1979, Townley Hall, Drogheda (O025770) [PV.3], PT (Townley, 1981; Boorman, 1986); August 1979, Tullyallen, Drogheda (O049760) [PV.3], PT (Townley, 1981; Boorman, 1986); **MAYO**: July-August 1980, Glenamoy (F880326) [MA.4], WL (Townley, 1981; Boorman, 1986); **MEATH**: July 1979, Ashbourne (O029519) [PV.4], PT (Townley, 1981; Boorman, 1986); July 1979, Oldbridge (O040749) [PV.3], PT (Townley, 1981; Boorman, 1986); **OFFALY**: June 1978, Kildangan, near Clara (N315294) [NV.4], PT (Townley, 1981; Boorman, 1986); **WESTMEATH**: August 1985, Lough Derravaragh (N470630) [PV.2], JPOC (Townley, 1981; Boorman, 1986); **WEXFORD**: June 1978, Aske, Gorey (T138588) [PU.4], PT (Townley, 1981; Boorman, 1986); June 1978, Killoughrim Forest (S900412) [PU.4], PT (Townley, 1981; Boorman, 1986); **WICKLOW**: April 1978, Roundwood (O191023) [PU.3], PT (Townley, 1981; Boorman, 1986); June 1978, Greystones (O280130) [PU.3], KB (Townley, 1981; Boorman, 1986); May-July 1988, near the track leading to Clonmannon, the Murrough (T305982) [PU.3], REB/RMB (Blackith and Blackith, 1989; Blackith *et al*., 1991).

***Culicoides* (*Avaritia*) *scoticus* Downes and Kettle, 1952**

DUBLIN: September-October 1979, June-October 1980, Chantilly, Shankill (O241219) [PV.4], PT and AM (Townley, 1981; Boorman, 1986); **LOUTH**: October 1978, May-September 1979, Townley Hall, Drogheda (O025770) [PV.3], PT (Townley, 1981; Boorman, 1986); **MAYO**: July-August 1980, Glenamoy (F880326) [MA.4], WL (Townley, 1981; Boorman, 1986); **WEXFORD**: June 1978, Aske, Gorey (T138588) [PU.4], PT (Townley, 1981; Boorman, 1986).

***Culicoides* (*Beltranmyia*) *circumscriptus* Kieffer, 1918**

There is one confirmed female Haliday specimen in the National Museum of Ireland without any collection date or locality data (Townley, 1981).

DUBLIN: 10 August 1979, Baldoyle (O250410) [PV.4], PT (Townley, 1981; Boorman, 1986); **LIMERICK**: August 1973, August 1974, Pallaskenry (R413550) [NU.2], JB (Townley, 1981;

Boorman, 1986); **LOUTH**: July-September 1978, July-September 1979, Townley Hall, Drogheda (O025770) [PV.3], PT (Townley, 1981; Boorman, 1986).

***Culicoides* (*Beltranmyia*) *salinarius* Kieffer, 1914**

Recorded as new to Ireland in Chandler, Ashe and O'Connor (2008) based on the Co. Wexford record of a single adult female detailed below.

WEXFORD: 1 September 1980, Carnsore Point (T1203) [PT.3], JPOC (Chandler, Ashe and O'Connor, 2008).

***Culicoides* (*Culicoides*) *delta* Edwards, 1939**

This species was recorded (Townley, 1981; Boorman, 1986) from the Chantilly locality given below under two different species names, *C. delta* Edwards and *C. lupicaris* Downes and Kettle. Subsequently, *C. lupicaris* was treated as a junior synonym of *C. delta* by Remm (1988).

DUBLIN: July-August 1980, Chantilly, Shankill (O241219) [PV.4], AM (Townley, 1981; Boorman, 1986); **LAOIS**: July-August 1981, on a bait horse in a mixed farming area, Ballaghmore (S240880) [NU.3], PT (Townley *et al*., 1984, sub *C. lupicaris* Downes and Kettle); **MAYO**: 16 April 1923, Hollymount [MV.4], WR (Townley, 1981; Boorman, 1986, sub *C. lupicaris* Downes and Kettle).

***Culicoides* (*Culicoides*) *grisescens* Edwards, 1939**

LOUTH: September 1979, Townley Hall, Drogheda (O025770) [PV.3], PT (Townley, 1981; Boorman, 1986).

***Culicoides* (*Culicoides*) *impunctatus* Goetghebuer, 1920**

Edwards *et al*. (1939: 145) have shown that since 1919, and in Edwards (1926), this species was misidentified as *Culicoides arcuatus* whereas the true *C. arcuatus* (Winnertz, 1852) is a junior synonym of *C. pictipennis* (Staeger, 1839). Consequently, the record of *C. arcuatus* in Edwards (1929a) from Killarney refers to *C. impunctatus* and not to *C. pictipennis*.

DUBLIN: August 1979, Baldoyle (O250410) [PV.4], PT (Townley, 1981; Boorman, 1986); September 1979, June-September 1980, Chantilly, Shankill (O241219) [PV.4], PT and AM (Townley, 1981; Boorman, 1986); **KERRY**: 24-27 May 1929, Killarney [MT.3], FWE (Edwards, 1929a, sub *Culicoides arcuatus* Winnertz sensu Edwards – misidentified; Hill, 1947;

Khalaf, 1954; Townley, 1981; Boorman, 1986); July 1970, Inistearaght, Blasket Islands [LT.3] TCK and GAW (Kelly and Walton, 1977; Townley, 1981; Boorman, 1986); August 1980, Camp, Dingle (Q709095) [MT.1], PT (Townley, 1981; Boorman, 1986); August 1980, Inch, Dingle (Q650010) [MT.1], PT (Townley, 1981; Boorman, 1986); August 1980, Killorglin (V775950) [MT.1], PT (Townley, 1981; Boorman, 1986); August 1980, Lispole, Dingle (Q520011) [MT.1], PT (Townley, 1981; Boorman, 1986); August 1980, Lower Lough Leane, Killarney (V850885) [MT.3], PT (Townley, 1981; Boorman, 1986); August 1980, Reenard Cross (V460781) [MT.1], PT (Townley, 1981; Boorman, 1986); 2 May 1981, Fossa (V9191) [MT.3], 1 female at light, PJC; 5 May 1981, Killarney, Upper Lake (V9282) [MT.3], 1 female, PJC; **LAOIS**: June 1978, Ballaghmore (S240880) [NU.3], PT (Townley, 1981; Boorman, 1986); **LIMERICK**: June 1974, Pallaskenry (R413550) [NU.2], JB (Townley, 1981; Boorman, 1986); **LOUTH**: May-October 1978, May-September 1979, Townley Hall, Drogheda (O025770) [PV.3], PT (Townley, 1981; Boorman, 1986); **MAYO**: July-August 1980, Glenamoy (F880326) [MA.4], WL (Townley, 1981; Boorman, 1986); **OFFALY**: June 1978, Kildangan, near Clara (N315294) [NV.4], PT (Townley, 1981; Boorman, 1986); **TYRONE**: August 1947, Lough Fea (H7686) [PA.1], PAB (Townley, 1981; Boorman, 1986); **WEXFORD**: June 1978, Aske, Gorey (T138588) [PU.4], PT (Townley, 1981; Boorman, 1986); **WICKLOW**: April 1978, Roundwood (O191023) [PU.3], PT (Townley, 1981; Boorman, 1986).

***Culicoides* (*Culicoides*) *newsteadi* Austen, 1921**

Townley (1981) mentions a record from Belfast based on a specimen in the Natural History Museum (London) but does not provide a date, collector or any other information.

ANTRIM: no date, Belfast [UF.1] (Townley, 1981, sub *C. halophilus* Kieffer, 1914; Boorman, 1986); **KERRY**: July 1970, Inistearaght, Blasket Islands [LT.3] TCK and GAW (Kelly and Walton, 1977, sub *C. halophilus* Kieffer, 1914; Townley, 1981, sub *C. halophilus* Kieffer, 1914).

***Culicoides* (*Culicoides*) *pulicaris* (Linnaeus, 1758)**

Since there is one confirmed male Haliday specimen in the National Museum of Ireland

(Townley, 1981) we accept therefore, based on this specimen, that Haliday's (1833) record of the species from Holywood, Co. Down, is correct.

CORK: July 1979, Kanturk (R380035) [NT.1], JB (Townley, 1981; Boorman, 1986); **DOWN**: 1827-1831, Holywood (UF.1), AHH (Haliday, 1833; Townley, 1981); **DUBLIN**: June 1979, Ashtown (O109371) [PV.4], PT (Townley, 1981; Boorman, 1986); September-November 1979, June-November 1980, Chantilly, Shankill (O241219) [PV.4], PT and AM (Townley, 1981; Boorman, 1986); July 1979, Kiltiernan (O210216) [PV.4], PT (Townley, 1981; Boorman, 1986); **GALWAY**; September 1979, Doorosbeg Point (R787947) [NU.1], JPOC (Townley, 1981; Boorman, 1986); **KERRY**: July 1979, Lough Derriana (V629741) [MT.1], JPOC (Townley, 1981; Boorman, 1986); 2 May 1981, Fossa (V9191) [MT.3], 1 female at light, PJC; 2 May 1981, Castlerosse (V9491) [MT.3], 1 female, PJC; **KILDARE**: October 1976, Newbridge (N805150) [PU.1], PT (Townley, 1981; Boorman, 1986); June 1979, Leixlip (N999369) [PV.4], PT (Townley, 1981, sub C. *odibilis* Austen; Boorman, 1986); **KILKENNY**: June 1978, Inistioge (S633372) [PU.2], PT (Townley, 1981; Boorman, 1986); **LAOIS**: June 1978, Ballaghmore (S240880) [NU.3], PT (Townley, 1981; Boorman, 1986); July-August 1981, on a bait horse in a mixed farming area, Ballaghmore (S240880) [NU.3], PT (Townley *et al*., 1984); **LEITRIM**: July 1978, Derrycarne Forest Park on Lough Boderg (N025911) [NV.3], JPOC (Townley, 1981, sub C. *odibilis* Austen; Boorman, 1986); **LIMERICK**: July-August 1973, June 1974, August 1974, Pallaskenry (R413550) [NU.2], JB (Townley, 1981; Boorman, 1986); **LOUTH**: May-November 1978, May-November 1979, Townley Hall, Drogheda (O025770) [PV.3], PT (Townley, 1981; Boorman, 1986); August 1979, Tullyallen, Drogheda (O049760) [PV.3], PT (Townley, 1981; Boorman, 1986); **MAYO**: July 1910, Clare Island [MV.1], PHG (Grimshaw, 1912; Townley, 1981; Boorman, 1986); no date [1909-1910], lough near Westport (MV.3), PHG (Grimshaw, 1912); no date [1909-1910], Castlebar Lough (MV.3), PHG (Grimshaw, 1912); 28 September 1922, Hollymount [MV.4], WR (Townley, 1981; Boorman, 1986); July-August 1980, Glenamoy (F880326) [MA.4], WL (Townley, 1981; Boorman, 1986); **MEATH**: August 1979, White Cross (O140688) [PV.3], PT (Townley, 1981; Boorman, 1986); **MONAGHAN**: 10 April 2007, woods beside lake, Nuremore (H8502) [PV.3], JPOC;

WESTMEATH: August 1978, Lough Derravaragh (N470630) [PV.2], JPOC (Townley, 1981; Boorman, 1986); **WEXFORD**: June 1978, Aske, Gorey (T138588) [PU.4], PT (Townley, 1981; Boorman, 1986); June 1978, Killoughrim Forest (S900412) [PU.4], PT (Townley, 1981; Boorman, 1986).

***Culicoides* (*Culicoides*) *punctatus* (Meigen, 1804)**

DONEGAL: May 1961, Kildoney Point, Ballyshannon (G830640) [NA.2], ECPC (Townley, 1981; Boorman, 1986); **DUBLIN**: June 1979, Ashtown (O109371) [PV.4], PT (Townley, 1981; Boorman, 1986); September-November 1979, June-November 1980, Chantilly, Shankill (O241219) [PV.4], PT and AM (Townley, 1981; Boorman, 1986); **KERRY**: July 1979, Lough Derriana (V629741) [MT.1], JPOC (Townley, 1981; Boorman, 1986); 2 May 1981, Fossa (V9191) [MT.3], 1 female at light, PJC; 2 May 1981, Aghadoe (V9292) [MT.3], 1 female, PJC; **KILDARE**: June 1979, Leixlip (N999369) [PV.4], PT (Townley, 1981; Boorman, 1986); **LAOIS**: July-August 1981, on a bait horse in a mixed farming area, Ballaghmore (S240880) [NU.3], PT (Townley *et al*., 1984); **LIMERICK**: July-August 1973, June 1974, August 1974, Pallaskenry (R413550) [NU.2], JB (Townley, 1981; Boorman, 1986); **LOUTH**: May-November 1978, May-November 1979, Townley Hall, Drogheda (O025770) [PV.3], PT (Townley, 1981; Boorman, 1986); **MAYO**: 16 April 1923, Hollymount [MV.4], WR (Townley, 1981; Boorman, 1986); July-August 1980, Glenamoy (F880326) [MA.4], WL (Townley, 1981; Boorman, 1986); **OFFALY**: 1 May 1981, Charleville Wood (N3222) [NV.4], 1 female, PJC; **WESTMEATH**: August 1978, Lough Derravaragh (N470630) [PV.2], JPOC (Townley, 1981; Boorman, 1986); **WEXFORD**: June 1978, Aske, Gorey (T138588) [PU.4], PT (Townley, 1981; Boorman, 1986).

***Culicoides* (*Monoculicoides*) *nubeculosus* (Meigen, 1830)**

Since there is one confirmed female Haliday specimen in the National Museum of Ireland collections (Townley, 1981) we accept therefore, based on this specimen, that Haliday's (1833) record of the species from Holywood, Co. Down, is correct. The specimen from Co. Cork was collected while feeding on a cow's teats.

CORK: 22 May 1983, Templemartin [NT.2], RB; **DOWN**: 1827-1831, Holywood [UF.1],

AHH (Haliday, 1833; Townley, 1981); **KILKENNY**: 1970's, Kilkenny [PU.2], PSM (Townley, 1981; Boorman, 1986); **LAOIS**: June 1978, Ballaghmore (S240880) [NU.3], PT (Townley, 1981; Boorman, 1986); July-August 1981, on a bait horse in a mixed farming area, Ballaghmore (S240880) [NU.3], PT (Townley *et al*., 1984); **LOUTH**: May 1978, July-September 1978, June 1979, August 1979 Townley Hall, Drogheda (O025770) [PV.3], PT (Townley, 1981; Boorman, 1986); **WEXFORD**: 28 June 1978, Aske, Gorey (T138588) [PU.4], PT (Townley, 1981; Boorman, 1986).

***Culicoides* (*Monoculicoides*) *parroti* Kieffer, 1922**

WEXFORD: 28 June 1978, Aske, Gorey (T138588) [PU.4], PT (Townley, 1981; Boorman, 1986).

***Culicoides* (*Monoculicoides*) *riethi* Kieffer, 1914**

DOWN: no date [1830's-1850's], Holywood [UF.1], AHH (Townley, 1981; Boorman, 1986); 8 July 1942, marshy ground adjacent to Belfast Lough [UF.1], RBJ (Jackson, 1947).

***Culicoides* (*Monoculicoides*) *stigma* (Meigen, 1818)**

DOWN: 1827-1831, Holywood [UF.1], AHH (Haliday, 1833, sub *Ceratopogon stigma*; Townley, 1981); **LOUTH**: 26 May 1979, Townley Hall, Drogheda (O025770) [PV.3], PT (Townley, 1981; Boorman, 1986).

***Culicoides* (*Oecacta*) *brunnicans* Edwards, 1939**

LOUTH: July 1979, Townley Hall, Drogheda (O025770) [PV.3], PT (Townley, 1981; Boorman, 1986); **WEXFORD**: 28 June 1978, Aske, Gorey (T138588) [PU.4], PT (Townley, 1981; Boorman, 1986).

***Culicoides* (*Oecacta*) *duddingstoni* Kettle and Lawson, 1955**

LIMERICK: July-August 1973, June 1979, Pallaskenry (R413550) [NU.2], anon. (Townley, 1981; Boorman, 1986).

***Culicoides* (*Oecacta*) *festivipennis* Kieffer, 1914**

DUBLIN: September 1979, June-October 1980, Chantilly, Shankill (O241219) [PV.4], PT (Townley, 1981, sub C. *odibilis* Austen; Boorman, 1986, sub C. *odibilis* Austen); **KILDARE**: July 1979, Leixlip (N999369) [PV.4], PT (Townley, 1981, sub C. *odibilis* Austen; Boorman,

1986, sub C. *odibilis* Austen); **LAOIS**: June 1978, Ballaghmore (S240880) [NU.3], PT (Townley, 1981, sub C. *odibilis* Austen; Boorman, 1986, sub C. *odibilis* Austen); **LEITRIM**: July 1978, Derrycarne Forest Park on Lough Boderg (N025911) [NV.3], JPOC (Townley, 1981, sub C. *odibilis* Austen; Boorman, 1986, sub C. *odibilis* Austen); **LIMERICK**: June-July 1974, Pallaskenry (R413550) [NU.2], JB (Townley, 1981, sub C. *odibilis* Austen; Boorman, 1986, sub C. *odibilis* Austen); **LOUTH**: July-August 1979, Townley Hall, Drogheda (O025770) [PV.3], PT (Townley, 1981, sub C. *odibilis* Austen; Boorman, 1986, sub C. *odibilis* Austen); **MAYO**: July-August 1980, Glenamoy (F880326) [MA.4], WL (Townley, 1981, sub C. *odibilis* Austen; Boorman, 1986, sub C. *odibilis* Austen); **MONAGHAN**: 21 May 1976, Lough Egish, willow scrub by lake [PV.1], JHC; **WEXFORD**: June 1978, Aske, Gorey (T138588) [PU.4], PT (Townley, 1981, sub C. *odibilis* Austen; Boorman, 1986, sub C. *odibilis* Austen).

***Culicoides* (*Oecacta*) *furcillatus* Callot, Kremer and Paradis, 1962**

LOUTH: August 1979, Townley Hall, Drogheda (O025770) [PV.3], PT (Townley, 1981; Boorman, 1986); September 1979, Tullyallen, Drogheda (O049760) [PV.3], PT (Townley, 1981; Boorman, 1986).

***Culicoides* (*Oecacta*) *heliophilus* Edwards, 1921**

There are five Haliday specimens, identified by F. W. Edwards, in the National Museum of Ireland without any collection date or locality data (Townley, 1981).

CORK: 17 June 1901, Glengariff [MT.4], JWY (Yerbury, 1902, sub "*Ceratopogon* sp. Inc."; Edwards, 1929b); **KERRY**: 24-27 May 1929, Killarney [MT.3], FWE (Edwards, 1929a, b; Edwards *et al*., 1939; Hill, 1947; Khalaf, 1954; Boorman, 1986).

***Culicoides* (*Oecacta*) *kibunensis* Tokunaga, 1937**

LAOIS: July-August 1981, on a bait horse in a mixed farming area, Ballaghmore (S240880) [NU.3], PT (Townley *et al*., 1984, sub *C. cubitalis* Edwards); **LIMERICK**: August-September 1973, June-July 1974, Pallaskenry (R413550) [NU.2], JB (Townley, 1981, sub *C. cubitalis* Edwards; Boorman, 1986, sub *C. cubitalis* Edwards); **LOUTH**: July-August 1979, Townley Hall, Drogheda (O025770) [PV.3], PT (Townley, 1981, sub *C. cubitalis* Edwards; Boorman, 1986, sub *C. cubitalis* Edwards).

***Culicoides* (*Oecacta*) *pictipennis* (Staeger, 1839)**

DUBLIN: 17 November 1984, Malahide Castle (O2243) [PV.4], 1 male, PJC; **KERRY**: 2 May 1981, Castlerosse (V9491) [MT.3], 1 female, PJC; **TIPPERARY**: 22 June 1975, mixed woods on Marl Bog, near Dundrum (R9544) [NU.4], 1 male, PJC; **WICKLOW**: 2 July 1978, Ballinaclash (T180854) [PU.3], PT (Townley, 1981; Boorman, 1986); 4 October 1980, Devil's Glen (T2-9-) [PU.3], 1 male, PJC.

***Culicoides* (*Oecacta*) *poperinghensis* Goetghebuer, 1953**

LOUTH: 15 August 1979, Tullyallen, Drogheda (O049760) [PV.3], PT (Townley, 1981; Boorman, 1986); 26 August 1979, Townley Hall, Drogheda (O025770) [PV.3], PT (Townley, 1981; Boorman, 1986).

***Culicoides* (*Oecacta*) *reconditus* Campbell and Pelham-Clinton, 1960**

LIMERICK: September 1973, Pallaskenry (R413550) [NU.2], JB (Townley, 1981; Boorman, 1986); **LOUTH**: July-August 1979, Townley Hall, Drogheda (O025770) [PV.3], PT (Townley, 1981; Boorman, 1986); **MAYO**: August 1980, Glenamoy (F880326) [MA.4], WL (Townley, 1981; Boorman, 1986).

***Culicoides* (*Oecacta*) *segnis* Campbell and Pelham-Clinton, 1960**

LOUTH: July-September 1978, July-September 1979, Townley Hall, Drogheda (O025770) [PV.3], PT (Townley, 1981; Boorman, 1986).

***Culicoides* (*Oecacta*) *vexans* (Staeger, 1839)**

There is one unconfirmed male Haliday specimen in the National Museum of Ireland without any collection date or locality data (Townley, 1981).

WEXFORD: 28 June 1978, Aske, Gorey (T138588) [PU.4], PT (Townley, 1981; Boorman, 1986).

***Culicoides* (*Silvaticulicoides*) *achrayi* Kettle and Lawson, 1955**

LAOIS: July-August 1981, on a bait horse in a mixed farming area, Ballaghmore (S240880) [NU.3], PT (Townley *et al.*, 1984); **LOUTH**: August 1979, Townley Hall, Drogheda (O025770) [PV.3], PT (Townley, 1981; Boorman, 1986); **MAYO**: August 1980, Glenamoy (F880326) [MA.4], WL (Townley, 1981; Boorman, 1986).

***Culicoides* (*Silvaticulicoides*) *fascipennis* (Staeger, 1839)**

DONEGAL: 30 May 1961, Kildoney Point, Ballyshannon (G830640) [NA.2], ECPC (Townley, 1981; Boorman, 1986); **DUBLIN**: June-September 1980, Chantilly, Shankill (O241219) [PV.4], PT (Townley, 1981; Boorman, 1986); **LOUTH**: July-August 1979, Townley Hall, Drogheda (O025770) [PV.3], PT (Townley, 1981; Boorman, 1986); **MAYO**: July-August 1980, Glenamoy (F880326) [MA.4], WL (Townley, 1981; Boorman, 1986).

***Culicoides* (*Silvaticulicoides*) *pallidicornis* Kieffer, 1919**

DUBLIN: September 1979, June-October 1980, Chantilly, Shankill (O241219) [PV.4], PT (Townley, 1981; Boorman, 1986); **LAOIS**: July-August 1981, on a bait horse in a mixed farming area, Ballaghmore (S240880) [NU.3], PT (Townley *et al.*, 1984); **LOUTH**: August 1979, Townley Hall, Drogheda (O025770) [PV.3], PT (Townley, 1981; Boorman, 1986); **MAYO**: August 1980, Glenamoy (F880326) [MA.4], WL (Townley, 1981; Boorman, 1986).

Tribe Heteromyiini

***Clinohelea* (*Clinohelea*) *unimaculata* (Macquart, 1826)**

First recorded from Ireland in Ashe and O'Connor (2002) based on a single adult female from the Co. Cavan locality detailed below.

CAVAN: 3 August 1981, on the shore of a lake at Bellananagh (H409112) [PV.1], JMOC (Ashe and O'Connor, 2002); **LOUTH**: 29 June 1975, mixed woods at Thomastown (N9-9-) [PV.3], 1 female, PJC; **OFFALY**: 25 July 2006, Charleville Wood (N3222) [NV.4], 1 female, PJC; **WEXFORD**: 29 July 1937, Curracloe [PU.4], AWS.

Tribe Palpomyiini

***Bezzia* (*Bezzia*) *kazlauskasi* Remm, 1966**

Added to the Irish list by Chandler, Ashe and O'Connor (2008) based on a single adult female but it was erroneously listed from Co. Westmeath with an incorrect grid reference – the correct county and grid reference are detailed below.

OFFALY: 27 June 1987, woodland edge near Lough Coura (N0913) [NU.3], PJC (Chandler, Ashe and O'Connor, 2008).

***Bezzia* (*Bezzia*) *nobilis* (Winnertz, 1852)**

DONEGAL: no date [early 20th Century], Slieve League [NA.1], CGL (Edwards, 1926).

***Bezzia* (*Bezzia*) *ornata* (Meigen, 1830)**

Recorded by Haliday (1833) from Holywood, Co. Down as *Ceratopogon ornatus*. There is one definite Irish Haliday specimen, an adult female, confirmed as *B. ornata* by P. J. Chandler. **DONEGAL**: 30 May 1961, Ballyshannon [NA.4], 3 males, ECPC; **DOWN**: 1827-1831, Holywood [UF.1], AHH (Haliday, 1833, sub *Ceratopogon ornatus*); **KERRY**: 2 May 1981, mixed wood at Castlerosse (V9491) [MT.3], PJC; 7 May 1981, Ross Island (V9489) [MT.3], male. PJC; **MAYO**: 28 September 1977, Westport Demesne (L9884) [MV.3], male, PJC.

***Bezzia* (*Homobezzia*) *annulipes* (Meigen, 1830)**

There are two Irish Haliday specimens in the National Museum of Ireland and one of these has a white label with "*annulipes*" in brown ink in Haliday's writing. The published record of this species from Holywood, Co. Down, in Haliday (1833) is accepted as valid based on the above named specimen. It was incorrectly recorded as new to Ireland in Chandler, Ashe and O'Connor (2008).

CAVAN: 21 July 2006, Virginia Woods (N5987) [PV.1], PJC (Chandler, Ashe and O'Connor, 2008); **DOWN**: 1827-1831, Holywood [UF.1], AHH (Haliday, 1833); **KILDARE**: 27 May 1984, Newbridge Fen (N7615) [PU.1], PJC (Chandler, Ashe and O'Connor, 2008); **WICKLOW**: 26 April 1984, birch *Betula* scrub near Carrigower (O2508) [PU.3], PJC (Chandler, Ashe and O'Connor, 2008).

***Bezzia* (*Homobezzia*) *leucogaster* (Zetterstedt, 1850)**

Recorded from Ireland by Chandler, Ashe and O'Connor (2008) based on a single adult female specimen from the following locality.

KILDARE: 27 May 1984, Newbridge Fen (N7615) [PU.1], PJC (Chandler, Ashe and O'Connor, 2008)

***Bezzia* (*Homobezzia*) *solstitialis* (Winnertz, 1852)**

New to Ireland in Chandler, Ashe and O'Connor (2008) based on one adult male specimen from Newbridge Fen and adult female specimens from the other two localities. The grid

reference of the Erriff River locality given in Chandler, Ashe and O'Connor (2008) is inaccurate but is corrected below

KILDARE: 27 May 1984, Newbridge Fen (N7615) [PU.1], PJC (Chandler, Ashe and O'Connor, 2008); **MAYO**: 14 June 1985, by the Erriff River (L8-6-) [MV.4], PJC (Chandler, Ashe and O'Connor, 2008); **TIPPERARY**: 22 June 1975, mixed woods on Marl Bog, near Dundrum (R9544) [NU.4], PJC (Chandler, Ashe and O'Connor, 2008).

***Bezzia* (*Homobezzia*) *taeniata* (Haliday, 1856)**

There are no surviving Haliday types or other specimens in the National Museum of Ireland but because he did exchange material with other entomologists, it is possible that there may be type material preserved in collections outside Ireland. Edwards (1926) states that it was "Recorded by Haliday from near Belfast" but this is incorrect because the closest locality, Toome Bridge given in Walker (1856), is about 36km north-west of Belfast.

Edwards (1926) said that he had seen no specimens answering to its description, although he considered it distinct - it has never been found in Britain. It is listed for France, Germany, Ireland and Sweden in Fauna Europaea (Szadziewski *et al.*, 2004) but the inclusion of Britain is an error.

ANTRIM: 1840's-1850's, Toome Bridge [PA.3], AHH (Walker, 1856, sub *Ceratopogon taeniata*; Edwards, 1926); **DERRY**: 1840's-1850's, Toome Bridge [PA.3], AHH (Walker, 1856, sub *Ceratopogon taeniata*; Edwards, 1926); **DOWN**: 1840's-1850's, on the sand-hills, Newcastle [UF.2], AHH (Walker, 1856, sub *Ceratopogon taeniata*); **DUBLIN**: 1840's-1850's, River "Doddey" [error = Dodder], Firhouse [PV.4], AHH (Walker, 1856, sub *Ceratopogon taeniata*).

***Bezzia* (*Pygobezzia*) *calceata* (Haliday, 1856)**

There are no surviving Irish Haliday type specimens in the National Museum of Ireland but there in one British Haliday specimen (not a type) whose identity was confirmed by F. W. Edwards in 1927. There may be Haliday type material preserved in some collections outside Ireland.

ANTRIM: 1840's-1850's, found at Toome Bridge (connecting the counties Antrim and Derry)

over the Bann river, near its issue from Lough Neagh [PA.3], AHH (Walker, 1856, sub *Ceratopogon taeniata*); **DERRY**: 1840's-1850's, found at Toome Bridge (connecting the counties Antrim and Derry) over the Bann river, near its issue from Lough Neagh [PA.3], AHH (Walker, 1856, sub *Ceratopogon taeniata*); **WICKLOW**: 20 May-3 June 1990, Blackditch Wood (O3103) [PU.3], REB/RMB.

***Palpomyia brachialis* (Haliday, 1833)**

There are four Irish Haliday specimens preserved in the National Museum of Ireland which are types. All four Irish specimens have: (i) a white label printed in black ink with the wording "Haliday 20.2.'82" which is the museum accession date of the 20 February 1882 and (ii) a green label handwritten in black ink with the locality "Holywood" on two specimens and "Holywood District" on the other two specimens. Two of the specimens also have a white label bearing the wording "*brachialis* H" written in brown ink in Haliday's handwriting. One of the specimens also has a modern label with the words "*BRACHIALIS* HALIDAY" written in black ink.

One specimen also has a white label with the word "TYPE" written in black ink and underlined in green and also has two further labels: (a) a white label with "*Palpomyia brachialis* Haliday det. P. J. Chandler = *nemorivaga* Goet." and (b) a white label with "*Ceratopogon brachialis* Haliday des. lectotype P. J. Chandler", both (a) and (b) labels are mostly handwritten in black ink except for "P. J. Chandler" which is printed in black. Since this lectotype designation was never published, the above specimen is desigated here as the lectotype. The remaining specimens are labelled as paralectotypes.

DOWN: 1827-1831, Holywood [UF.1], AHH (Haliday, 1833, sub *Ceratopogon brachialis*; Walker, 1856, sub *Ceratopogon brachialis*); **LOUTH**: 29 June 1975, alder *Alnus* marsh at Ballymascanlon Swamp (J0-1-) [PV.3], PJC; **TIPPERARY**: 22 June 1975, mixed woods on Marl Bog, near Dundrum (R9544) [NU.4], PJC.

***Palpomyia distincta* (Haliday, 1833)**

There are four Irish Haliday specimens preserved in the National Museum of Ireland which are types. All four Irish specimens have: (i) a white label printed in black ink with the wording "Haliday 20.2.'82" which is the museum accession date of the 20 February 1882 and (ii) a green

label handwritten in black ink with the locality "Holywood" on three specimens and "Holywood District" on the fourth specimen. Two of the specimens also have a white label bearing the wording "*distinctus* H" written in brown ink in Haliday's handwriting. One specimen also has a white label with the word "TYPE" written in black ink and underlined in green.

Another specimen has a white label with the wording "*Ceratopogon distinctus* Haliday des. lectotype 29/9/2000 P. J. Chandler" mostly handwritten in black ink except that "P. J. Chandler" is printed. The lectotype designation was never published and the above specimen is therefore desigated here as the lectotype. The remaining specimens are labelled as paralectotypes.

DOWN: 1827-1831, Holywood [UF.1], AHH (Haliday, 1833, sub *Ceratopogon distinctus*; Walker, 1856, sub *Ceratopogon distinctus*); **LOUTH**: 29 June 1975, alder marsh at Ballymascanlon Swamp (J0-1-) [PV.3], PJC; 29 June 1975, mixed woods at Thomastown (N9-9-) [PV.3], PJC; **MAYO**: 14 June 1985, Aasleagh Falls (L8-6-) [MV.4], PJC; **WESTMEATH**: 28 June 1987, Lough Slevin, birch and alderwood (N4556) [PV.2], 2 females, PJC; **WEXFORD**: 8 August 2006, beside stream in woodland, Oaklands Wood (S7125) [PU.2], JPOC.

***Palpomyia flavipes* (Meigen, 1804)**

There is one Irish Haliday specimen in the National Museum of Ireland which has a white determination label written in Haliday's hand in brown ink which states "*P. flavipes* M.". The published record of this species from Holywood, Co. Down, in Haliday (1833) and for Ireland in Walker (1856) is accepted as valid based on this specimen. Specimens from two Co. Mayo localities (Lough near Westport and Westport riverside) are in the collections of the National Museums of Scotland.

ANTRIM: 30 June 1975, Massereene, Lough Neagh (J1-8-) [PA.3], 1 female, PJC; **CAVAN**: 23 July 2006, Virginia Woods (N5987) [PV.1], 2 males, PJC; **DOWN**: 1827-1831, Holywood [UF.1], AHH (Haliday, 1833, sub *Ceratopogon flavipes*; Walker, 1856, sub *Ceratopogon flavipes*); **LOUTH**: 29 June 1975, alder marsh at Ballymascanlon Swamp (J0-1-) [PV.3], PJC; **MAYO**: July 1910, Belclare [MV.3], JNH (Grimshaw, 1912); no date [1909-1910], Castlebar Lough [MV.3], PHG (Grimshaw, 1912); no date [1909-1910], Clare Island [MV.1], JNH and

PHG (Grimshaw, 1912); no date [1909-1910], Louisburgh [MV.1], CM (Grimshaw, 1912); 1 August 1911, Lough near Westport [= Ballin and Coolbarren Loughs] [MV.3], PHG (Grimshaw, 1912); 28 July 1911, Westport riverside [MV.3], PHG (Grimshaw, 1912); **TIPPERARY**: 22 June 1975, mixed woods on Marl Bog, near Dundrum (R9544) [NU.4], PJC (Chandler, Ashe and O'Connor, 2008); **WESTMEATH**: 28 June 1987, Glen Lough (N2866) [NV.4], PJC; **WICKLOW**: 16 July 1971, Powerscourt (O2116) [PU.3], 1 female, PJC.

***Palpomyia lineata* (Meigen, 1804)**

Recorded as new to Ireland in Chandler, Ashe and O'Connor (2008) based on adult female specimens for the two localities detailed below.

KILDARE: 27 May 1984, hedge at the edge of Newbridge Fen (N7615) [PU.1], PJC (Chandler, Ashe and O'Connor, 2008); **LAOIS**: 26 June 1987, near Annaghmore Lough (N3-1-) [NU.3], PJC (Chandler, Ashe and O'Connor, 2008); **WESTMEATH**: 28 June 1987, open shore of Lough Ballynafid (N4160) [PV.2], 1 male, PJC.

***Palpomyia luteifemorata* Edwards, 1926**

New to Ireland in Chandler, Ashe and O'Connor (2008) based on a single adult female from the River Boyne locality.

MEATH: 16 July 1971, wooded bank by the River Boyne, near Hays (N9-7-) [PV.4], PJC (Chandler, Ashe and O'Connor, 2008).

***Palpomyia praeusta* (Loew, 1869)**

Chandler, Ashe and O'Connor (2008) recorded it as new to Ireland from the Powerscourt locality based on an adult female specimen.

WICKLOW: 10 July 1971, by shaded stream at Powerscourt (O1-1-) [PU.3], PJC (Chandler, Ashe and O'Connor, 2008).

***Palpomyia serripes* (Meigen, 1818)**

Recorded as new to Ireland from several localities in Chandler, Ashe and O'Connor 2008), based on adult female specimens, but the Lough Coura record was erroneously listed from Co. Westmeath with an incorrect grid reference – the correct county is Offaly and the grid reference is corrected.

KERRY: October 1973, near Kenmare [MT.4], ECPC (Chandler, Ashe and O'Connor, 2008); **LOUTH**: 29 June 1975, alder marsh at Ballymascanlon Swamp (J0-1-) [PV.3], PJC (Chandler, Ashe and O'Connor, 2008); **OFFALY**: 27 June 1987, woodland edge near Lough Coura (N0913) [NU.3], PJC (Chandler, Ashe and O'Connor, 2008); **TIPPERARY**: 22 June 1975, mixed woods on Marl Bog, near Dundrum (R9544) [NU.4], PJC (Chandler, Ashe and O'Connor, 2008); **WESTMEATH**: 16 June 1985, open shore at Lough Patrick (N4263) [PV.2], PJC (Chandler, Ashe and O'Connor, 2008); 28 June 1987, Glen Lough (N2866) [NV.4], PJC (Chandler, Ashe and O'Connor, 2008).

***Palpomyia spinipes* (Meigen in Panzer, 1806)**

First recorded from Ireland in Blackith *et al.* (1991), under the name *Palpomyia fulva* (Macquart, 1826) which was subsequently shown to be a junior synonym of *P. spinipes* by Krzywiński (1996). The Co. Wexford female specimen collected by J. J. F. X. King is preserved in the National Museums of Scotland at Edinburgh although most of the King collection is in Glasgow.

LOUTH: 29 June 1975, alder marsh at Ballymascanlon Swamp (J0-1-) [PV.3], PJC; 29 June 1975, mixed woods at Thomastown (N9-9-) [PV.3], PJC; **WESTMEATH**: 28 June 1987, flooding fen at Scragh Bog (N4259) [PV.2], PJC; **TIPPERARY**: 22 June 1975, mixed woods on Marl Bog, near Dundrum (R9544) [NU.4], PJC; **WEXFORD**: 5 July 1902, Wexford town [PU.4], JJFXK; **WICKLOW**: May-July 1989, Blackditch Wood (O3103) [PU.3], REB/RMB (Blackith *et al.*, 1991, sub *Palpomyia fulva*).

***Palpomyia tinctipennis* Kieffer, 1919**

First recorded from Ireland in Chandler, Ashe and O'Connor, (2008), based on adult female specimens, from several of the localities detailed below.

CORK: 26 June 1969, Tobar Ghobnatan, near Ballyvourney (W1976) [MT.3], 1 female, PJC; **DUBLIN**: 16 July 1971, Glenasmole (O0922) [PV.4], 1 female, PJC; **TIPPERARY**: 21 June 1975, wooded marsh at Cregg (S4-2-) [PU.2], PJC (Chandler, Ashe and O'Connor, 2008); 21 June 1975, edge of dense wood at Ahenny (S4-2-) [PU.2], PJC (Chandler, Ashe and O'Connor, 2008); 22 June 1975, mixed woods on Marl Bog, near Dundrum (R9544) [NU.4], PJC

(Chandler, Ashe and O'Connor, 2008); **WATERFORD**: 21 June 1975, woodland edge at Coolnamuck (S3512) [PT.1], PJC (Chandler, Ashe and O'Connor, 2008); **WICKLOW**: 25 June 1975, woodland stream at Powerscourt (O2116) [PU.3], 1 female, PJC; 26 May 1984, marsh below Great Sugar Loaf (O2-1-) [PU.3], 1 female, PJC; 15 May 1991, Knocksink Wood (O2117) [PU.3], PJC (Chandler, Ashe and O'Connor, 2008).

Tribe Sphaeromiini

***Probezzia seminigra* (Panzer, 1798)**

Haliday (1833) recorded this species from Holywood, Co. Down, under two different species names i.e. "*Sphæromyas*" *concinnus* Meigen and "*Sphæromyas*" *varipes* Stephens, both of which are junior synonyms of *P. seminigra*. The Co. Waterford female specimen collected by J. J. F. X. King is preserved in the collections of the National Museums of Scotland.

CAVAN: 23 July 2006, Virginia Woods (N5987) [PV.1], 1 female, PJC; **DOWN**: 1827-1831, Holywood [UF.1], AHH (Haliday, 1833, sub *Sphæromyas concinnus* and *Sphæromyas varipes*); **GALWAY**: 27 May 1996, Knockferry, Lough Corrib (M235418) [MV.4], PA; 7-14 August 2001, on the lakeshore of Ballaghdacker Lake (Hollygrove Lake) (M7857) [NV.2], JPOC (Ashe *et al*., 2002) (live pupae collected on the 7th from which 15 males and 8 females hatched between the 8th and 14th); **LONGFORD**: 14-20 August 2001, on the lakeshore of Lough Ree, near Lanesborough (N0068) [NV.4], JPOC (Ashe *et al*., 2002) (live pupae collected on the 14th from which 4 adult males hatched on the 20th); **MAYO**: 26 May 1996, Castleburke, Lough Carra (M165772) [MV.3], PA; 28 June 2001, on the shoreline at Castleburke, Lough Carra (M165772) [MV.3], PA and JPOC (Ashe *et al*., 2002) (live pupae collected on the 28th with adult males and females hatched over subsequent days); **WATERFORD**: 23 July 1902, Cappoquin [NT.3], 1 female, JJFXK; **WESTMEATH**: 10 June 1985, area of scrub and marsh, Lough Derravaragh (N4-6-) [PV.2], PJC (Ashe *et al*., 2002).

***Sphaeromias fasciatus* (Meigen, 1804)**

This species was first recorded from Holywood, Co. Down, by Haliday (1833) under the name "*Sphæromyas*" *annulitarsis* Stephens which Edwards (1926: 415) confirmed is a junior synonym of *S. fasciatus*. There are no surviving Haliday specimens in the National Museum of

Ireland but Haliday's record is accepted. The species was confirmed as Irish based on the Kilkenny record detailed below (Ashe *et al*., 2002).

DOWN: 1827-1831, Holywood [UF.1], AHH (Haliday, 1833, sub *Sphæromyas annulitarsis*); **DUBLIN**: 24 May 1893, Santry [PV.4], JNH; **KILKENNY**: 25 June 1987, by a pool in mixed woodland, Castlecomer (S5474) [PU.1], PJC (Ashe *et al*., 2002).

Subfamily DASYHELEINAE

***Dasyhelea* (*Dasyhelea*) *bilineata* Goetghebuer, 1920**

First recorded from Ireland by Ashe *et al*. (2007) as *D. saxicola* (Edwards, 1929) but the latter was subsequently synonymized with *D. bilineata* by Dominiak and Szadziewski (2010). The immature stages of this species occur in a wide range of temporary small rainwater bodies which form in natural and man-made habitats – these include rainwater accumulations in rock holes, leaf axils (of certain plants), gutters, garden bird baths and containers (plastic, metal, ceramic, etc.) left outside in gardens and other outdoor areas.

DUBLIN: 14-25 May 1984, Beech Park Crescent, Castleknock (O0837) [PV.4], JMOC (reared from rainwater in plastic garden bucket); 13 July 1990, 28 August-10 September 1990, Shelton Drive, Terenure (O128305) [PV.4], PA (reared from larvae in rainwater in an old frying pan used as a bird bath); **MAYO**: 8 July 2002, rainwater pools on limestone pavement, about 200 metres north-west of Keel Bridge, near the outflow of Lough Carra (M161682) [MV.4], PA (Ashe *et al*. 2007, sub *D. saxicola* (Edwards)); 9 July 2002, rainwater rockpool on limestone pavement, at bend in track about 800 metres south of Kilkeeran, near Partry (M162720) [MV.4], PA (Ashe *et al*. 2007, sub *D. saxicola* (Edwards)).

***Dasyhelea* (*Dasyhelea*) *flavifrons* (Guérin, 1833)** **New to Ireland**

This species, which is associated with fungi and with sap runs and tree holes (of several deciduous tree genera), is widespread in Europe and also occurs in the U.S.A. (Dominiak and Szadziewski, 2010). The Co. Clare material is in the collections of the National Museums of Scotland.

CLARE: 5 June 1967, Ballyvaughan, Newtown Castle [MU.3], ECPC; **OFFALY**: 12 June 1986, oak *Quercus*-ash *Fraxinus* woods beside lake, Charleville Wood (N3122) [NV.4], MCDS

(reared from sap of ash (*Fraxinus excelsior*)).

***Dasyhelea* (*Dicryptoscena*) *modesta* (Winnertz, 1852)** **New to Ireland**

Specimens from both localities below are preserved in the National Museums of Scotland collections.

CLARE: 4 June 1962, Ballyvaughan, Rinnamore Lough [MU.3], 5 males, ECPC; **KERRY**: 27 May 1961, Castlecove, east of Caherdaniel [MT.2], pair *in copula*, ECPC.

***Dasyhelea* (*Dicryptoscena*) *notata* Goetghebuer, 1920** **New to Ireland**

Although new to Ireland, it is also new to the British Isles because it was deleted from the British list by Dominiak and Szadziewski (2010), as its inclusion by Edwards (1926, 1929b) had been based on two unidentifiable females. Adult males and associated pupal exuviae of this species were collected on the water surface along the shoreline of Lough Carra.

MAYO: 26 May 1996, Brownstown, Lough Carra (M196705) [MV.4], PA.

***Dasyhelea* (*Pseudoculicoides*) *turficola* Kieffer, 1925**

The North Bull Island, Co. Dublin, records of this species (Healy, 1975, 1977; Speight and Healy, 1977) were misidentified as *D. flavoscutellata* (Zetterstedt, 1850). Chandler, Ashe and O'Connor (2008) showed that misidentifications of *D. flavoscutellata* in the British Isles are referable to *D. turficola*.

CLARE: 4 June 1962, Ballyvaughan (M1-0-) [MU.3], ECPC (Chandler, Ashe and O'Connor, 2008); **DUBLIN**: 27 July 1962, 2 August 1962, North Bull Island, Dublin Bay [PV.4], BH (Healy, 1975a, b, sub *Dasyhelea flavoscutellata* (Zetterstedt); Speight and Healy, 1975, sub *Dasyhelea flavoscutellata* (Zetterstedt)); **GALWAY**: 21 July 1990, margin of saline lake, Inishmore (L8515) [MU.3], PA (Chandler, Ashe and O'Connor, 2008).

Subfamily FORCIPOMYIINAE

***Atrichopogon* (*Atrichopogon*) *pavidus* (Winnertz, 1852)** **New to Ireland**

In Britain, this species was listed under the name *A. pollinivorus* Downes, 1955 until it was synonymised with *A. pavidus* by Szadziewski (2001). The Sligo record is based on a single, slide mounted, adult male specimen.

KERRY: 7 May 1981, Ross Island, male at *Crataegus* flowers (V9489) [MT.3], PJC; **SLIGO**:

23 August 1999, Dromore West (G431336) [NA.2], PA; **WESTMEATH**: 27 June 1989, near Lough Coura (N0913) [NU.3], 1 female, PJC.

***Atrichopogon* (*Lophomyidium*) *rostratus* (Winnertz, 1852)**

There are two specimens from the Clare Island locality in the National Museum of Ireland. The National Museums of Scotland has specimens from Belclare, Clare Island, Knappagh and Lough near Westport localities.

MAYO: 5 August 1911, Belclare [MV.3], PHG (Grimshaw, 1912, sub *Helea* (*Ceratopogon*) *rostrata*); no date [1909-1910], Castlebar Lough [MV.3], PHG (Grimshaw, 1912, sub *Helea* (*Ceratopogon*) *rostrata*); July 1910, Clare Island [MV.1], PHG (Grimshaw, 1912, sub *Helea* (*Ceratopogon*) *rostrata*); 3 August 1911, Knappagh [MV.3], PHG (Grimshaw, 1912, sub *Helea* (*Ceratopogon*) *rostrata*); 1 August 1911, Lough near Westport [= Ballin and Coolbarren Loughs] [MV.3], PHG (Grimshaw, 1912, sub *Helea* (*Ceratopogon*) *rostrata*).

***Atrichopogon* (*Meloehelea*) *lucorum* (Meigen, 1818)** **New to Ireland**

The record below is based on two male specimens.

KERRY: 7 May 1981, Muckross Abbey Wood (V9786) [MT.3], PJC.

***Forcipomyia* (*Caloforcipomyia*) *glauca* Macfie, 1934** **New to Ireland**

Based on a slide mounted adult male specimen from the Co. Donegal locality specified below.

DONEGAL: 11 August 1984, by a wooded stream, Glenveigh National Park (C0019) [NA.3], PA.

***Forcipomyia* (*Forcipomyia*) *bipunctata* (Linnaeus, 1767)**

Listed in Walker (1856: 210, sub *Ceratopogon bipunctatus*) as "(E. S. I.)" where the "I" is an abbreviation for Ireland. Not listed in Haliday (1833) but in Haliday's ms *Catalogue of Irish insects* (Fig. 2) the species is listed for Holywood, Co. Down, where he has inserted a note in the right margin saying "larva under bark of firs".

DOWN: 1840's-1850's, Holywood [UF.1], AHH (Walker 1856: 210, sub *Ceratopogon bipunctatus*).

WATERFORD: 9 August 2006, from vegetation on marine cliffs, Dunmore East (X6999) [PT.3], JPOC (Chandler and O'Connor, 2010).

***Forcipomyia* (*Forcipomyia*) *ciliata* (Winnertz, 1852)** **New to Ireland**

This is a fungus feeding species.

KERRY: 8 May 1981, Ross Island, by rotten log (V9489) [MT.3], 1 female, PJC; **MAYO**: 19 June 1985, Westport Demesne (L9-8-) [MV.3], 1 female, PJC; **WICKLOW**: 9 October 1980, Avondale Forest Park, on the Giant Polypore fungus (*Meripilus giganteus*) (T1985) [PU.3], 7 females, PJC.

***Forcipomyia* (*Forcipomyia*) *nigra* (Winnertz, 1852)** **New to Ireland**

ROSCOMMON: 26 September 1977, Castlerea (M6780) [NV.1], 1 female, PJC.

***Forcipomyia* (*Forcipomyia*) *pulchrithorax* Edwards, 1924**

First recorded from Ireland in Alexander and Chandler (2010).

FERMANAGH: July 2006, insect trap inside a hollow old Horse Chestnut tree *Aesculus hippocastanum*, Killynure, Castle Coole Demesne (H2643) (NA.4), KNAA (Alexander and Chandler, 2010); **KILDARE**: 8 September 1991, Newbridge Fen (N7615) [PU.1], JMOC.

***Forcipomyia* (*Forcipomyia*) *radicicola* Edwards, 1924** **New to Ireland**

KERRY: 2 May 1981, Castlerosse (V9491) [MT.3], 1 male, PJC.

***Forcipomyia* (*Forcipomyia*) *sphagnophila* Kieffer, 1925** **New to Ireland**

The records below from Co. Carlow, Co. Cavan and Co. Wicklow, are based on slide mounted adult male specimens.

CARLOW: 15 April 1990, Altamont Gardens (S8665) [PU.4], JPOC; **CAVAN**: 20 March 1988, Virginia Woods (N5987) [PV.1], JMOC; **OFFALY**: 19 September 1999, Charleville Wood (N3222) [NV.4], 3 males, PJC; **TIPPERARY**: 22 June 1975, Bansha Wood, (R9-3-) [NU.4], 2 females, PJC; **WICKLOW**: 26 June-24 July 1999, Clonmannon, The Murrough (T304982) [PU.3], PA (Malaise trap).

***Forcipomyia* (*Panhelea*) *aristolochiae* (Rondani, 1860)**

First recorded from Ireland in Ashe and O'Connor (2002), under the name *Forcipomyia* (*Panhelea*) *brevicubitus* Goetghebuer, 1920, based on a single male adult specimen from the

Co. Cavan locality detailed below. Dominiak and Szadziewski (2010) have since shown that *F.* (*P.*) *aristolochiae* is a senior synonym of *F.* (*P.*) *brevicubitus*.

CAVAN: 19 June 1999, wet channel fed by a spring adjoining a marshy boggy area at Raragh, 3km north-west of Kingscourt (N770982) [PV.1], PA (Ashe and O'Connor, 2002, sub *Forcipomyia* (*Panhelea*) *brevicubitus* Goetghebuer, 1920).

***Forcipomyia* (*Pterobosca*) *paludis* (Macfie, 1936)**

Recorded as widespread in Ireland in Donnithorne (2010) who does not name the species (referred to as parasitic flies) or give any detailed records but includes a colour photograph showing several adults on the wings of a dragonfly species. Baker (2011) names the species and refers to its occurrence in Ireland based on Donnithorne (2010). It is hoped that detailed Irish records of this species will be obtained which can be included in a future publication.

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TABLE 1. A list of the 21 species of Ceratopogonidae from the vicinity of Holywood, Co. Down, with the names and spellings as given in Haliday (1833).

Culicoides palustris	*Ceratopogon brachialis* , n. s.
Culicoides scutellatus	*Ceratopogon gracilis* , n. s.
Culicoides pulicaris	*Ceratopogon flavipes*
Culicoides obsoletus	*Ceratopogon rufipes*
Culicoides nubeculosus	*Ceratopogon ferruginea*
Culicoides subsultans	*Sphæromyas concinnus*. Meig.
Ceratopogon stigma	*Sphæromyas varipes*. St.
Ceratopogon albicornis	*Sphæromyas annulitarsis*. St.
Ceratopogon ornatus	*Serromyia femorata*
Ceratopogon annulipes	*Serromyia morio*
Ceratopogon distinctus , n. s.	

TABLE 2. A list of the 11 species of Ceratopogonidae listed for Ireland with the names and spellings as given in Walker (1856).

Ceratopogon bipunctatus	*Ceratopogon distinctus*
Ceratopogon pulicaris	*Ceratopogon tibialis*
Ceratopogon nitidus	*Ceratopogon femoratus*
Ceratopogon gracilis	*Ceratopogon tæniatus*
Ceratopogon flavipes	*Ceratopogon calceatus*
Ceratopogon brachialis	

FIGURE 1. Page 201 from Haliday's unpublished ms *Catalogue of Irish insects* where the Ceratopogonidae start in the middle of the page with the genus *Ceratopogon* which is followed by *Sphaeromyias* and *Palpomyia*.

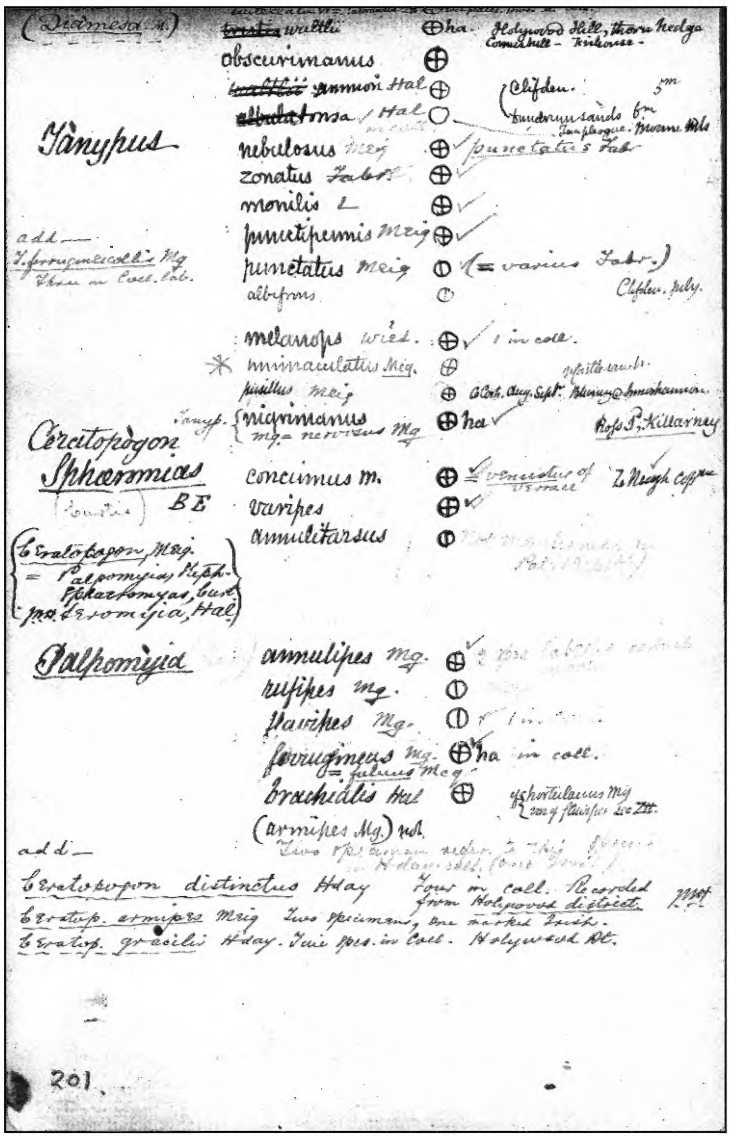


FIGURE 2. Page 202 from Haliday's unpublished ms *Catalogue of Irish insects* where the Ceratopogonidae includes the genera *Serromyia*, *Culicoides* and *Forcipomyia*.

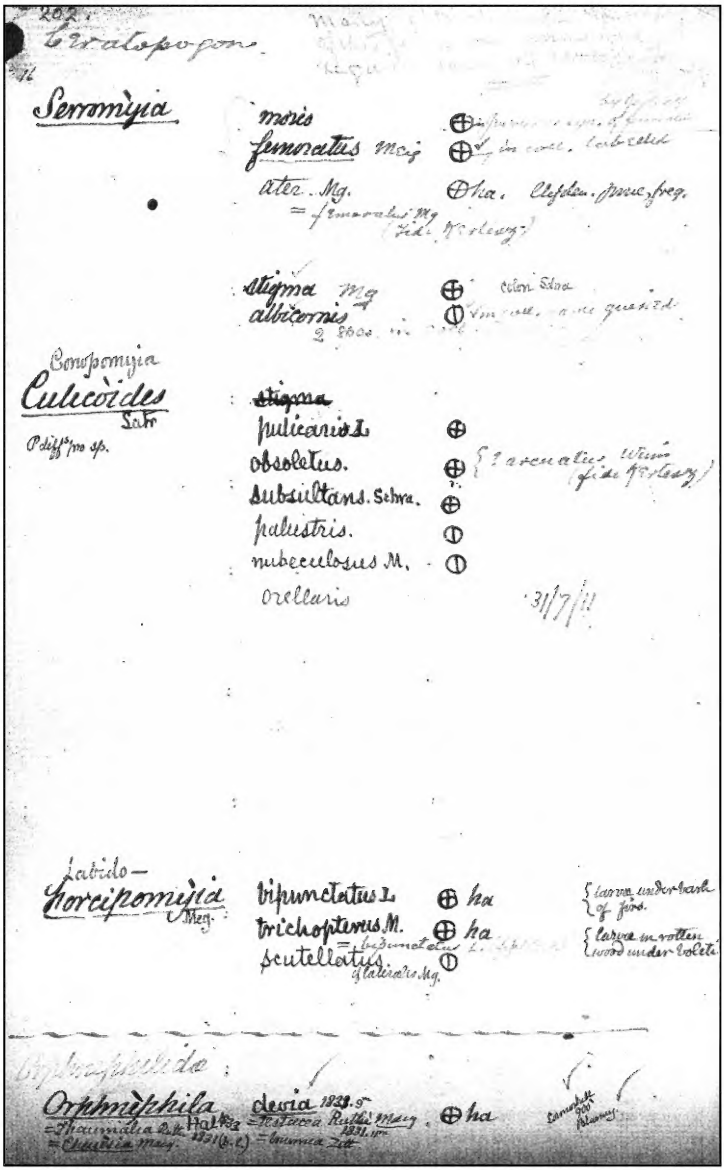
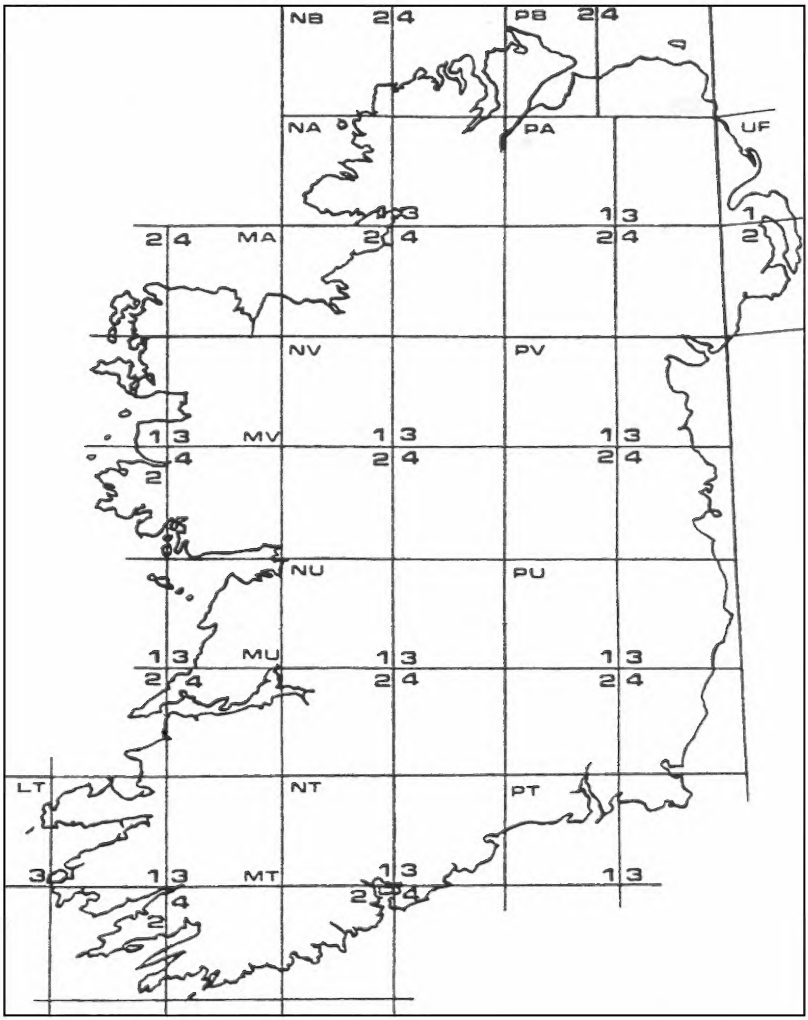


FIGURE 3. The Universal Transverse Mercator (UTM) 50 km grid map for Ireland showing the boundaries of each 50km square and the numbering system.



BOOK REVIEW

Ireland's butterflies a review by David Nash, Trevor Boyd and Deirdre Hardiman. Dublin Naturalists' Field Club, Dublin. 2012. ISBN 9780953003723. 185 x 250mm format, hard cover. 272pp including 56 maps, 228 photographs, 90 illustrations and charts. Available from <www.butterflyireland.com> at €27.50 (including postage) and in book shops with a RRP of €25 in the Republic of Ireland and £20 in Northern Ireland.

The book begins with an account of the historical background to the study of butterflies in Ireland. This is followed by short sections on geology and soils, climate and conservation and a major section (64pp) on butterflies as insects dealing with the anatomy and functioning of butterflies. The largest part (111pp) is devoted to accounts of the individual species occurring in Ireland. The final section provides a description of thirty-three sites for viewing butterflies in twenty-two counties. There are eleven appendices including a topographical index, the red list of Irish butterflies, a very useful glossary and an extensive list of references and bibliography. More than one thousand recorders from all over Ireland are acknowledged.

This superb book is a very welcome addition to recent publications on butterflies in Ireland and is likely to act as a standard on the subject for many years. The preparation of the *Millennium Atlas of Butterflies in Britain and Ireland* (2001) coordinated by Butterfly Conservation UK was a major stimulus to butterfly recording. The atlas work involved close cooperation between Butterfly Conservation Northern Ireland (BCNI) and the Dublin Naturalists' Field Club (DNFC). As Trevor Boyd had led the coordination of recording in Northern Ireland and David Nash in the Repblic of Ireland, they were ideally placed to produce this all Ireland publication. Deirdre Hardiman used her medical training to underpin the detailed section on the anatomy and physiology of insects and butterflies. She also contributed the numerous spectacular photographs of Ireland's butterflies at all their stages.

The book is comprehensive and draws together all available data on Irish butterflies. The butterfly distribution maps show each species regularly occurring in Ireland and are based largely on records from 1995- 2009 with a small number from 2010 and 2011. The maps show occurrences at 10km square level. The maps are clear and enable easy identification of county

and individual 10km square.

The opening decade of this century has been an exceptionally interesting one for butterflies in Ireland with four new species confirmed as resident - Comma, Cryptic Wood White, Essex Skipper and Small Skipper. This compares with just the Pearl Bordered Fritillary during the whole of the twentieth century. For those mainly interested in distribution, there are dramatic changes in the numbers of 10km squares for some species compared with the Millennium Atlas. Two species provide good examples of these changes, namely the Marsh Fritillary and the Holly Blue. In the case of the Marsh Fritillary, most noticeable additions are in Counties Clare, Donegal, Fermanagh, Mayo, Roscommon and Wicklow. In 2011 a population was even discovered in Dublin on the North Bull Island. These recent changes in the Marsh Fritillary distribution map result from enhanced recording and do not reflect increases in numbers on the ground. The situation regarding the Holly Blue appears different. Large increases in and around Belfast, Donegal and in the Greater Dublin area at least in part appear to represent real increases in numbers of the butterfly. Significant numbers of recorded second generation Holly Blues in east Ulster, although none in Donegal and Fermanagh, also seem to be genuine changes. Some believe these are attributable to climatic change although other possibilities such as introduction of mainland European Holly Blue eggs and larvae on imported Holly bushes cannot be ruled out.

However in interpreting the maps, it is important to keep in mind that each 10km square comprises $100km^2$. In some cases with the scarcer species, there may just be one known population in such an area. In many others, there may be dozens or even hundreds of recorded populations. Thus there is real need for systematic detailed butterfly surveying in Ireland to enable an accurate assessment of this important part of our national heritage.

Certainly serious lepidopterists will enjoy this publication but thanks to the magnificent pictures and the glossary, it will be welcome also to those with a more passing interest in butterflies. For most it will be to read slowly, dip into from time to time and above all to have for reference purposes. Clearly the book involved an immense amount of work. It is a major contribution to the study and knowledge of butterflies in Ireland and a fitting testament to the

dedication of the authors, and the contribution of the more than one thousand recorders from all over Ireland.

Bob Aldwell

NOTICE

Irish NATURALISTS' JOURNAL

The *Irish Naturalists' Journal* commenced publication in 1925 as successor to the *Irish Naturalist*. Two issues a year include papers on all aspects of Irish natural history, including botany, ecology, geography, geology and zoology. The *Journal* also includes distribution records, principally for cetaceans, fish, insects and plants, together with short notes and book reviews. There is an Occasional Publications series for larger contributions on specific topics.

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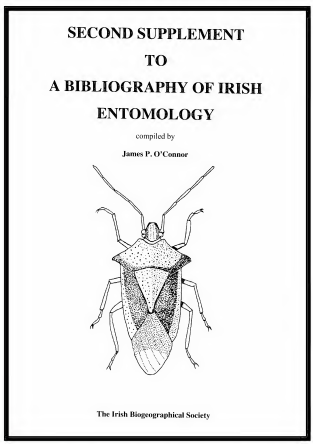

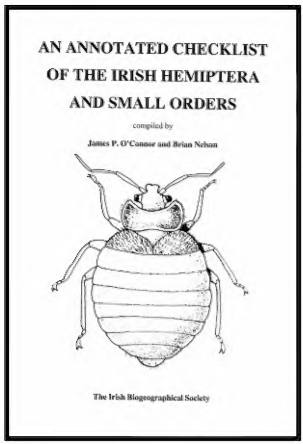

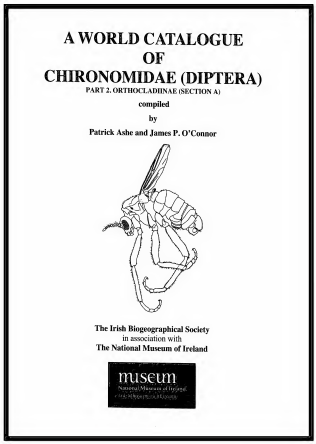

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